

11h MEETING OF THE IHO- INTER REGIONAL COORDINATION COMMITTEE

IHO-IRCC11

Genoa, Italy, 3-5 June 2019

Report of the Worldwide ENC Database Working Group (WENDWG)

Submitted by:	Chair, WENDWG
Related Documents:	Final minutes of IRCC10 and HSSC10, IHO Strategic Plan Performance Indicators (and Appendix IV to the IHO Annual Reports).
Related Projects:	N/A

Chair:	Jamie McMICHAEL-PHILLIPS, UK
Vice-Chair:	John NYBERG, USA
Secretary:	Yves GUILLAM, IHO Secretariat.
Member States, RHCs and RENCs:	Membership List (See Enclosure 1)

Meetings Held During Reporting Period

1. WENDWG9, 26 – 28 February 2019, Brest, France.
2. Planned: WENDWG10, 18 – 20 February 2020, Hong Kong, China.

Programme of Work

3. In 2019, at the 9th meeting of the Working Group, in Brest, France, the following key issues were discussed and are summarised in more detail further within this report:

- ENC Coverage and Overlapping Issues
- IHO ENC catalogue
- RENC harmonisation and distribution
- The Full Implementation of the WEND Principles
- Impact of New TORs & C2 Actions (Workshop Sessions)
- Review and Update of the WENDWG Work Programme

ENC Coverage and Overlapping Issues

4. 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.

5. 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 database. In turn this will assist greatly in improving ENC coverage assessments for port areas.

IHO ENC Catalogue

6. 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

7. 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.

8. PRIMAR continues to innovate in projects many of which contribute to S-100 Implementation Strategy.

9. ICENC continues to include significant training components within its service.

10. 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

11. 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.

12. Following much support from KHOA, INTToGIS Phase II experimentation has completed and commissioning is expected in the July to August 2019 timeframe. Phase II will include 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 INTToGIS.

13. 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 INTToGIS II (Manager Mode only, available to MS only).

Workshop Session to examine impact of new TORs & C2 Actions

14. Two workshop sessions were held to examine the impact of the new TORs and actions from the 2nd 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 ENC's 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 to be submitted at IRCC11. WENDWG aims to finalise drafting of WENS Principles at WENDWG11 for submission thereafter to IRCC.
 - c. It was proposed that WENDWG ToRs be further amended to support an implementation strategy for S-100 based products, including S101 ENC's. The proposed amendments are submitted with this report for IRCC approval at Annex A.
 - 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 INTogIS system (INTogIS 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.

Review and Update of the WENDWG Work Programme

15. All IRCC previous actions have been incorporated into WENDWG work programme and progressed accordingly.
16. An updated WENDWG Work Programme is included with this report at Annex B and submitted to IRCC11 for approval.
17. WENDWG still has a very active role to play within the IHO. IRCC is requested to approve continuation of its activities.

¹ C2/30: ...applicability of the WEND-like Principles to production/dissemination of S-101 ENC's and the first generation of S-100 based products...

² C2/31: ...draft implementation strategy/roadmap for transition plan for regular and harmonized production and dissemination of S-100 based products...

³ C2/27: ...WENDWG to include in next meeting, initial assessment of the lessons learned from the implementation process of the new IHO Resolution 1/2018...

⁴ C2/28: ...instruct and provide guidance to the WENDWG on how evaluation of the effectiveness of IHO Resolution 1/2018 should be conducted...

Action Required of IRCC

18. The IRCC is invited to:
 - a. **Note** that work continues by stakeholders to improve coverage and to manage overlaps. *[Para 4]*
 - b. **Encourage** RHCs are to make their own risk assessment of navigational risk for ENC overlaps and to take action to manage these as required. *[Para 4]*
 - c. **Reinforce** the fact that 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 (Resolution 1/2018 – IHO CL 19/2018 refers). *[Para 4]*
 - d. **Note** that work is underway to improve data which in turn will improve ENC coverage assessments for port areas. *[Para 5]*
 - e. **Commend** IHO secretariat and all other stakeholders for delivery and improvements to the IHO ENC Catalogue. *[Para 6]*
 - f. **Commend** ICENC and PRIMAR for their ongoing support to the ENC producer and user communities. *[Paras 7, 8 & 9]*
 - g. **Encourage** ENC producers to make available all ENC data (including exclusive data) to every RENC to facilitate quality control (overlapping checks, risk assessment etc). *[Para 7]*
 - h. **Commend** EAHC RECC for its progress in establishing its operations. *[Para 10]*
 - i. **Encourage** RHCs to continue timely provision to WENDWG of status reports on ENC coverage, availability and overlaps. *[Para 11]*
 - j. **Commend** KHOA and other stakeholders for their hard work in developing INTOGIS Phase II. *[Para 12]*
 - k. **Encourage** ENC producers 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). *[Para 12]*
 - l. **Note** that a WENS Drafting Group Progress Report will be presented at IRCC11 for discussion. *[Para 14b]*
 - m. **Approve** draft revision to WENDWG ToRs (as attached) that support an implementation strategy for S-100 based products, including S101 ENCs. *[Para 14b]*
 - n. **Note** that that time has come to start applying the different steps identified in the Resolution 1/2018 to be in a more robust position to evaluate effectiveness in the near future. *[Para 14d]*
 - o. **Approve** the proposed updated WENDWG 2019-20 Work Programme as given at Annex A and the continuity of WENDWG activities ([WENDWG ToRs](#) Art. 4.4 refers). *[Paras 16 & 17]*

Annex:

- A. Proposed Revision to WENDWG ToRs
- B. Proposed 2019-20 Work Programme for WENDWG

Enclosure:

1. WENDWG Membership correct at April 2019.

WORLD-WIDE ELECTRONIC NAVIGATIONAL CHART DATABASE WORKING GROUP (WENDWG)

Terms of Reference and Rules of Procedure

References:

- a) 1st IRCC Meeting (Monaco, June 2009)
- b) 5th IRCC Meeting (Wollongong, Australia, June 2013) – Approval of amendments from WENDWG3
- c) 9th IRCC Meeting (Paramaribo, Suriname, June 2017) – Alignment with the amendments to the Convention on the IHO (IHO CL 41/2016 refers)
- d) 10th IRCC Meeting (Goa, India, June 2018) – Expansion of the scope
- e) 11th IRCC meeting (Genoa, Italy, June 2019) – Support of the S-100 Implementation Strategy

This WG is a subsidiary of the Inter Regional Coordination Committee (IRCC). Its work is subject to IRCC approval.

TERMS OF REFERENCE

The purpose of the WEND Working Group is to advise IRCC to enable the highest societal value of Member State effort by:

1. 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 **and**
2. Reviewing options, and recommending actions, that expand the value of the Worldwide ENC Database to all marine data users applying data management principles **and**
3. **Supporting the S-100 based products implementation strategy.**

RULES OF PROCEDURE

The WG should:

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 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.

Composition and Chairmanship

7. Membership of the WG is open to all Member States of the IHO. The WG shall comprise representatives from IHO Member States, representatives from each RENC operator, the Chairs of the RENC governance boards, representatives from each RHC, other subject matter experts as deemed appropriate by the IRCC; and a representative from the IHO Secretariat. The IHO Secretariat will also provide a secretary.
8. Expert Contributors may be invited to join the WG as required, according to the task at hand. Expert Contributors shall be invited by the Chair.
9. The Chair and Vice-Chair shall be representatives of IHO Member States and shall be decided by vote of the IHO Member States present and voting at a meeting. The election of the Chair and Vice-Chair shall be decided at the first meeting after each ordinary session of the Assembly. If the Chair is unable to carry out the duties of the office, the Vice-Chair shall assume the Chair with the same powers and duties.
10. The requirement for the continued existence of the WG shall be reviewed at each meeting of the IRCC.
11. The WG shall conduct its business by correspondence to the maximum extent possible. However it will plan to meet annually.
12. Decisions of the WG shall be made by consensus.

WENDWG Work Programme 2019-20 (to be approved at IRCC-11)

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 inforce (IHO CL 19/2018 refers). Actions C2/27 and C2/28
B.4	Make available a Worldwide AIS traffic density database to the IHO Member States through the IHO GIS System (INToGIS II,...)	M	June 2019	2018	2020	O	US, NO, FI , 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 2018 . EAHC RECC has joined .
D.3	Monitor ENC Producers who distribute their ENCs through a RENC	M	WENDWG10	2014	Permanent	O	RENCs, RHCs , IHO Sec.	Updated ENC Data Flow Diagram	IHO CL 59/2014 refers. Action WENDWG7/12 (second part)

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.1	Monitor global and regional ENC Coverage	H		2014	Permanent	O	UK, RHCs	Annual statistics	Done for 2018. Reports are now made by RHCs Rep. at WENDWG meetings
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)

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
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
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	WENDWG9 Permanent	O	Myanmar, Sri Lanka, Thailand, UK, Viet Nam		Action WENDWG7/12 WENDWG8/13 Action WENDWG9/09
L.1	Consider possibility of offering a licence management service for non-SOLAS class vessels	M		2018	WENDWG9 WENDWG10	O	RENCs		Action WENDWG9/13

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
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 st 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)



WENDWG MEMBERSHIP

(April 2019)

Member State	RHC ¹		
Argentina	SWAtHC	Capt Fabian VETERE	fveter@hidro.gov.ar
Australia	SWPHC	Mr Mike PRINCE Ms Hilary THOMPSON	Mike.Prince@defence.gov.au hilary.thompson@defence.gov.au
Brazil		Capt Nickolas ROSCHER	nickolas.roscher@marinha.mil.br
Canada	USCHC	Mr Louis MALTAIS	louis.maltais@dfo-mpo.gc.ca
		Mr Doug BRUNT	Douglas.Brunt@dfo-mpo.gc.ca
Denmark		Mr Jens Peter HARTMANN	jepha@gst.dk
Finland	BSHC	Mr Jarmo MÄKINEN	jarmo.makinen@traficom.fi
France	EAtHC, MBSHC	Ing en chef Laurent LOUVART	laurent.louvar@shom.fr
Germany	-	Mr Thomas DEHLING	Thomas.Dehling@bsh.de
Hong Kong, China	EAHC	Mr Michael CM CHAU	michaelchau@mardep.gov.hk
India	NIOHC	RAdm Vinay BADHWAR	ia-inho@navy.gov.in
Iran (I.R. of)	RSAHC	Mr Saeid PARIZI	sparizi@pmo.ir
Italy	-	Dr Marta PRATELLESI	marta.pratellesi.@marina.difeas.it
Japan	-	Dr Yukihiko KATO	ico@jodc.go.jp
Norway	ARHC	Mr Evert FLIER	evert.flier@kartverket.no
Poland		Mr Stanislaw PIETRZAK	s.pietrzak@mw.mil.pl
Singapore		Dr Parry OEI	parry_oei@mpa.gov.sg
Suriname	MACHC	Ms Berenice MAHABIER	bmahabier@mas.sr
Sweden	NHC	Ms Annika KINDEBERG	Annika.Kindeberg@Sjofartsverket.se
Turkey	-	Lt Emre GULHER	egulher@shodb.gov.tr
United Kingdom		Mr Jamie MCMICHAEL-PHILLIPS (Chair)	Jamie.McMichael-Phillips@ukho.gov.uk
United Kingdom	NSHC	Mr Nigel SUTTON	Nigel.Sutton@UKHO.gov.uk

¹ RHC : Regional Hydrographic Commission

South Africa	SAIHC	Captain Theo STOKES	hydrosan@iafrica.com
United States		Mr John NYBERG (Vice Chair)	john.nyberg@noaa.gov
United States		Mr John LOWELL	john.e.lowell@nga.mil
RENCs	RENCs		
PRIMAR	PAC Chair	Ing. en chef Laurent KERLEGUER	laurent.kerleguer@shom.fr
PRIMAR	Operator	Ms Birte Noer BORREVIK	borbir@kartverket.no
PRIMAR	Director	Mr Hans Christoffer LAURITZEN	hans.christoffer.lauritzen@kartverket.no
PRIMAR	Manager	Ms Daria MULYARENKO	daria.mulyarenko@kartverket.no
IC-ENC	SC Chair	Captain Marc van der DONCK	MCJ.vd.Donck@mindef.nl
IC-ENC	Manager	Mr James HARPER	james.harper@ic-enc.org
EA-RECC	Manager	Mr Kai hong CHAN	khchan5@mardep.gov.hk
IHO Secretariat	IHO Secretariat		
Director	Director	RAdm (Ret) Mustafa IPTES	mustafa.iptes@iho.int
Assistant Director	Assistant Director	Mr Yves GUILLAM (Secretary)	yves.guillam@iho.int