WENDWG Report to the BSHC 21st Conference

by Jarmo Mäkinen, BSHC WENDWG representative

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 ENCs through integrated services that support chart carriage requirements of SOLAS Chapter V, and the requirements of the IMO Performance Standards for ECDIS. Its tasks are:

- *Monitor the development of adequate ENC coverage to meet any carriage requirements for ECDIS*
- *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*
- *Advise MS, where appropriate, on the need, as well as on the methods and tools for validating the data, and on any assistance which could be offered by the RENCs*
- *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*
- *Assist in harmonizing the policies of regional ENC Coordinating Centres (RENC) with respect to matters related to administration, legality, finances, technical processes, et cetera.*

1. Status of the work of WENDWG

The WENDWG is chaired by *Capt. Jamie McMichael-Phillips* (UK). Following the retirement of Mr Sean Hinds (Canada), Mr John Nyberg was appointed as a vice Chair for next WENDWG. *Mr Yves Guillam (IHB)* is acting as the role of secretary.

Each Regional Hydrographic Commission should have a representative in the WENDWG. The BSHC has nominated *Mr Jarmo Mäkinen* of Finland as its representative for the WENDWG.

2. Outcome of the WENDWG6 meeting 8-10 March 2016, Stavanger

The WENDWG6 meeting took place on 8-10 March 2016 in Norway, hosted by the Norwegian Hydrographic Service (NHS). Twenty-four delegates from 16 Member States, representing 11 Regional Hydrographic Commissions, 2 Regional ENC Coordinating Centres, and the IHB attended the meeting. Expert contributors from industry and academia had been invited as observers.

Some key issues dealt with in the meeting:

- Review of the progress made on the work items of WEND
- Resolving overlaps
- ENC Distribution and RENC harmonisation
- ENC Coverage Status Review
- AIO (Admiral Information Overlay)
- Full implementation of the WEND Principles
- Industry and Stakeholders' Session

Review of the progress made on the work items of WEND

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).

Status of full implementation of WEND principles was studied by a subgroup lead by France.

Global ENC coverage has now reached the point where further progress is primarily dependent upon new surveys or re-surveys being carried out in the areas not yet covered by ENCs. There still remain numerous cases of overlapping ENCs, which is contrary to the ENC production principles established by the IHO. It was agreed that the situation is not improving. One of the reasons identified is that most of the RHCs do not set up "Approved" ENC Schemes as they do for INT paper charts. New action was agreed upon:

AGENDA ITEM/WORK IEM	SUBJECT	ACTION No.	ACTIONS&DECISIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at 18 April 2016)
	ENC Schemes	WENDWG6/06	**RHCs** to define and adopt ENC Schemes (as it is done for INT Charts Schemes) and provide basic metadata to the IHB and **IHB** to consider including a layer of "Approved" ENC Schemes to the IHO ENC Catalogue or as an extension of the INT Web Chart Catalogue.	**WENDWG-7**	

Singapore is leading a research study using OEM tools for analyzing ENC's, in the Malacca Strait.

IC-ENC provided a very comprehensive report on the unpredictable behaviour of ECDIS in situations where overlapping data occurs. It was agreed by the working group and supported by the industry stakeholder participants that CIRM be invited to distribute the IC-ENC report on overlapping ENC data to ECDIS manufacturers in order to provide a better understanding of the consequences in ECDIS operating software when uploading or displaying ENCs.
Links to presentation and reports:
https://www.iho.int/mtg_docs/com_wg/WEND/WENDWG6/WENDWG6-04.1A2%20Overlapping%20Data%20v3_YG.pdf

https://www.iho.int/mtg_docs/com_wg/WEND/WENDWG6/WENDWG6-04.1A2%20Part%20A%20-%20Report%20on%20scenarios%20and%20test%20cases%20on%20ECDIS_FINAL.pdf

https://www.iho.int/mtg_docs/com_wg/WEND/WENDWG6/WENDWG6-04.1A2_Part_B.pdf

Resolving overlaps

The WEND Principles and IHO Standards quite clearly state "there must be no overlapping data between cells of the same Navigational Purpose".

Global analysis for overlaps and coverage made by UKHO was presented. Little progress has been made to resolve overlaps. This study also includes some overlaps in the Baltic Sea (see table 1). Mostly these are not significant. Issue is monitored by BSICCWG. It has been noted, that analysis can have different results, depending on the analysis tool.

Overlaps

Cellname	Cellname 1	Usage Band
PL3MP153	DK3BORNH	3
RU3NCJP9	LT382001	3
RU3NCJP9	PL3K0030	3
RU3NCJP9	PL3MP151	3
RU3NSKI9	EE3D0201	3
RU3NSKI9	EE3D0403	3
DK4LGLGS	DE416050	4
DK4LILBS	DE416012	4
PL4MAP37	DE416090	4
RU4NDJS8	PL4MAP41	4
SE4DHWHE	DK4GSMON	4
SE4DHWHE	DK4SUNDT	4
SE4DHWHG	DK4GSMON	4
SE4DI0XC	DK4KATGS	4
SE4DI0XE	DK4SUNDT	4
SE5IHZTE	DK5HLSNS	5

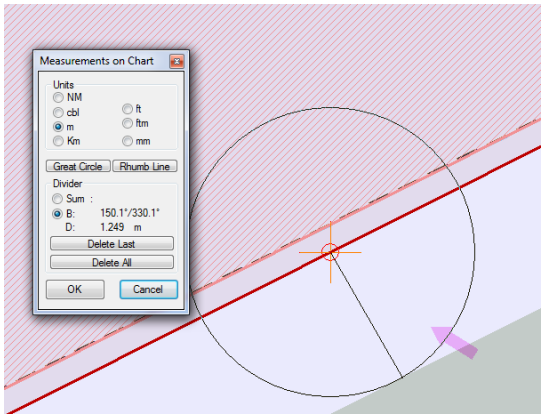
Table 1 ENC overlap analysis, Baltic Sea (UKHO, WENDWG6)

Significant overlaps are still a problem at a worldwide level. WEND agreed to report to IRCC-8 and seek guidance from this Committee, on the intention to draft a proposal at the IHC-19/IHOA1 for the adoption of an IHO Decision, the objective of which being a commitment to:

- identify the most "navigationally-significant" overlapping issues
- prevent the increase of such cases
- address and solve all of those cases, as soon as possible and at least within 3-years, at the IHO level (using the full range of tools: WEND Guidelines, RHCs, ENC Schemes, RENCs, OEMs.)

<u>Example of solving overlaps; EE and FI</u>

FI4EIHMP is overlaping EE4D1207 up to 1,3 m 59°45.618936'N 24°29.997384'E.

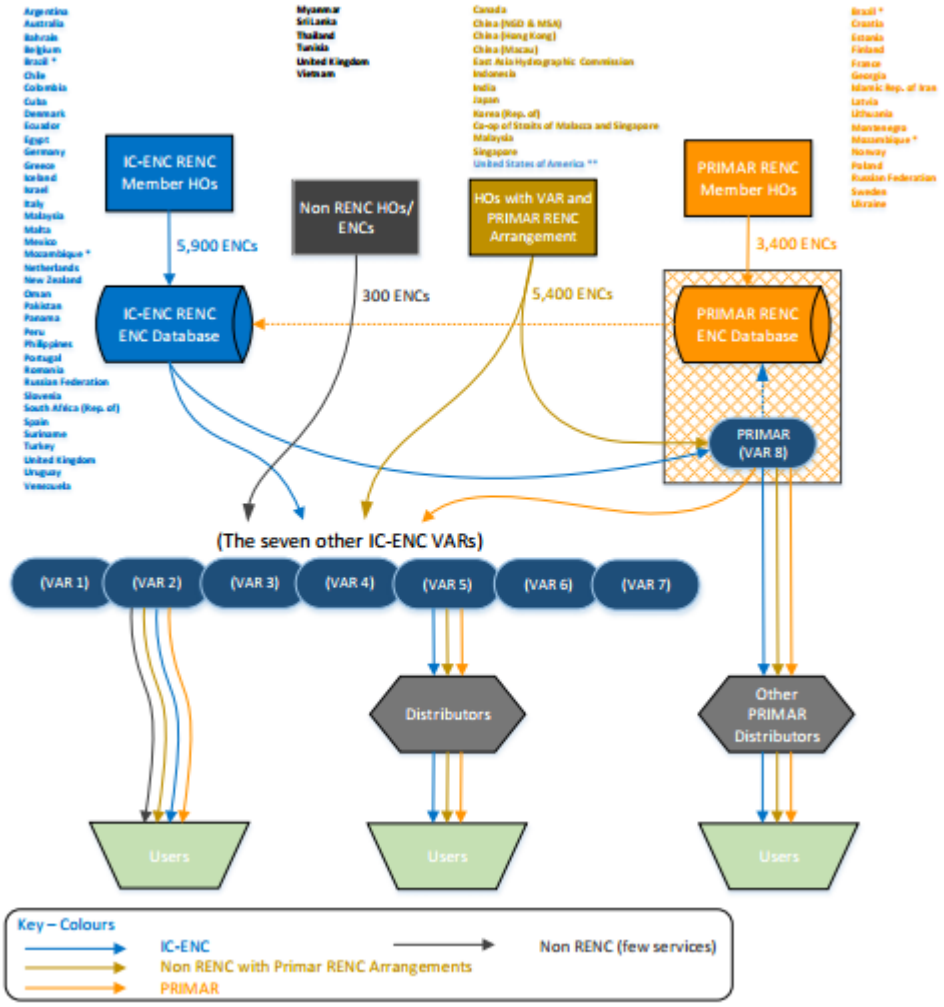


EE4D1207 is overlapping FI4EIHMP 2.6 m 59°44.107962'N 24°24.007776'E.

Overlaps bigger than 5 m not found – not critical.

ENC Distribution and RENC harmonization

Both RENCs gave a status report, including harmonization activities. ENC data flow diagram (picture 1), constructed by both RENCs, illustrated the few remaining distribution issues still to be resolved.



The WENDWG noted the progress made by the RENCs in supporting the WENDWG programme of work.

ENC Coverage Status Review

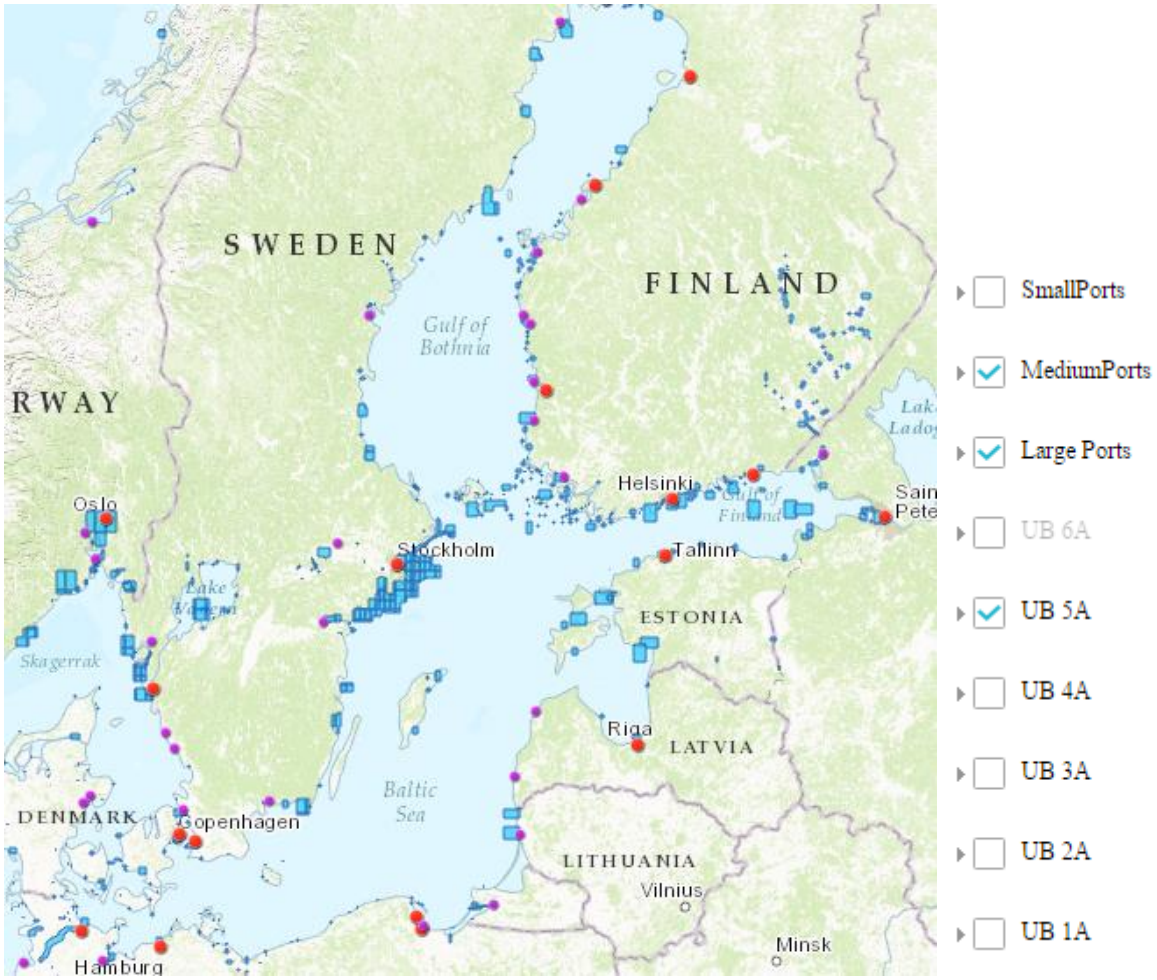
The UKHO provided a global analysis of the situation in terms of ENC coverage. There was almost no change from the year 2014;

- Small-scale ENCs 100%
- Medium-scale ENCs 90%
- Large-scale ENCs 97%

The meeting was informed that progress had been made by several regional International Charting Coordination Working Groups (ICCWG) that are now using ENC coverage as part of their systematic risk assessment analysis protocols. The development of a database, derived from the U.S. National Geospatial Agency World Port Index Database, that will facilitate the identification of the ports and locations

where large scale ENC coverage is missing, was decided. The study will include various categories of SOLAS shipping, not only cruise ships.

RHCs are encouraged to implement systematic risk assessment methodologies to assess and further design the optimal ENC coverage.



Picture 2. Harbour-ENC coverage in medium and large scale ports in the Baltic Sea.

AIO (Additional Information Overlay)

Following up on issue discussed at the last IRCC and HSSC since 2014, WENDWG discussed further about overlay services.

The WENDWG noted the report prepared by the correspondence group (Finland, France, Hong Kong Hydrographic Office, Norway, Singapore, Sweden) and agreed on the proposals to be submitted at IRCC-8 for endorsement and implementation:

1. *UKHO is to withdraw their AIO service from the areas where the primary charting authority produces T&P NtMs for their ENC.*

2.a. AIO service is to be provided only if and after a given producer nation has provided consent for such a service on waters where it is the primary charting authority.

2.b. An improved solution for awareness and use of T&P updates in future S-101 based ECDIS to be included in the ENCWG / S-101 Project Team work plans.

The importance to include T&Ps to ENC service was underlined.

The Full implementation of WEND principles

France, on behalf of the correspondence group, gave a comprehensive analysis on the barriers that prevent the full implementation of the WEND Principles and listed the possible consequences. Several recommendations were reported, some of them existing already in the IHO toolbox. Link to report; **Full implementation of WEND Principles- report**

The WENDWG noted the report on the full implementation of the WEND Principles and invited the WENDWG Chair to seek further guidance at IRCC-8.

Review of the WENDWG Programme

WENDWG Programme of Work for 2016-17 agreeed to be prepared by the Secretary (with few amendments) and put as a part of the report of the WENDWG for submission to IRCC-8. Link: WENDWG Work Programme 2016-17

Industry and Stakeholders' Session

The participation of expert contributors at the WENDWG, for the first time, was very fruitful and enlightening throughout the working sessions. The presentations made in the stakeholders' session raised also a lot of discussions and questions.

- The Data Aspects of future navigation: What Industry is looking for when talking eNavigation? (CIRM/Jeppesen)
- ENCs and NtMs around Taiwan: Real-world test cases of WEND, the risks and user needs. Presentation (National Taiwan Ocean University)
- Grid indexing and referencing for S-100/S-101 (Caris)
- Consequences in Shipping (SevenCs)

Presentations can be found WENDWG 6 meeting site. Link: WENDWG6

4. Next meeting

The next Meeting of the WEND will take place 31 Jan- 2 Feb in Washington D.C., USA. It will be a back to back meeting with the RENCs meeting.

5. Actions for the BSHC 21st Conference

- note on this report
- give further guidance to BSHC WENDWG representative.