14th Meeting of the Worldwide ENC Database Working Group (WENDWG), Norfolk, Virginia, USA,
20 – 22 February

Contribution to the IHO Work Programme 2024	
Task 3.4.1	Organize, prepare and report annual meetings of the WEND Working Group - Foster the implementation of the WEND principles including WEND100 principles). Monitor progress and report to IRCC.

The 14th meeting of the Worldwide ENC Database Working Group (WENDWG), was held from 20 to 22 February 2024 in Norfolk, Virginia, USA, hosted by the Office of Coast Survey (NOAA). This meeting included a short Stakeholders' Session on the "*Expectations from Mariners and End-User Service Providers on ENDS[1] Provision*".

The meeting was chaired by Mr Jens Schröder-Fürstenberg (Germany), seconded by Mr Jason Scholey, Vice Chair (UK). Forty-one delegates from 21 Member States (Australia, Brazil, Canada, China, Denmark, Ecuador, Finland, France, Germany, Greece, Indonesia, Italy, Latvia, Norway, Republic of Korea, Spain, Suriname, Sweden, Türkiye, United Kingdom and the United States)[2] representing 12+1 Regional Hydrographic Commissions (ARHC, BSHC, EAHC, EAtHC, MACHC, MBSHC, NHC, NSHC, SAIHC[3], SWAtHC, SWPHC, USCHC and the HCA), the RENCs (IC-ENC, PRIMAR, and the EAHC-RECC) attended the meeting. Two Stakeholders (Furuno, ChartWorld) out of six had responded positively to the invitation from the WENDWG Chair. Director Luigi Sinapi and Assistant Director Yves Guillam (Secretary) represented the IHO Secretariat.

WENDWG14 participants

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1 *Electronic Navigational Data Services.*
2 *Apologies received from India, and South Africa.*
3 *Represented by the UK.*

In their opening speeches, Ms Julia Powell, Chief of Marine Chart Division (NOAA)[4], and the Chair welcomed the participants and reminded the important IMO milestone of January 2026 for the S-100 ECDIS. IHO Director Luigi Sinapi echoed their statements highlighting the importance of defining a S-100 capabilities-based approach at regional level and for the WENWG to provide subsequent guidelines through the IRCC to the S-100 Regional Coordinators for a timely and harmonized implementation of the S-100 Roadmap.

Opening address by the WENDWG Chair

The Chair provided a short report on the accomplishments of the WENDWG since the last meeting. Addressing an action from the Council aiming to make IHO events more inclusive, the WENDWG confirmed the relevance of its Terms of Reference in force (in-person plenary meetings once year, with virtual meetings between for addressing specific issues). The RENCs, which maintain the S-57 ENCs Data Flow Diagram from Producers to End-Users on an annual basis, confirmed that they had started to design the much more complex description of the diagram applicable to ENDS in the S-100 eco-system.

The RHCs reported on the general situation in their associated Charting Region, and shared the challenges they face, and the various options retained in the implementation of the S-100 Roadmap. Together with the outcome of a survey on the readiness level of the RHCs and Member States presented by the Chair, the discussion revealed a large span of readiness level and the difficulty, despite the WEND100-IGIF matrix tool designed in 2022, to make a robust and harmonized assessment at national level on the one hand, and regional level on the other hand, both levels being necessary. From this survey, the metrics on the SPI[5] 1.3.1[6] was refined and will remain in force until the term of the current IHO Strategic Plan 2021-2026.

Beyond the *capability* readiness level, the WENDWG agreed that there was a need to prepare for the 2025 IHO Reports to the IMO, the *expected coverage* of the full Phase I spectrum of S-100 based products in January 2026 and onwards, including S-101. In order to do so, INTo-GIS III remains the one-stop-shop platform to support the RHCs and give a worldwide vision of the S-100 plans and production. KHOA (Republic of Korea) confirms its intention to pursue this development but announced a delay for the development and testing phases of the interface by the IHO Secretariat, Member States and RHCs, this interface being necessary as long as the S-128[7] files are not available. The establishment of a management plan, including the testing phases by RHCs, was recommended on this project.

The WENDWG noted the potential scope for the application of ISO 9001-like principles proposed by the IRCC ("*RHC S-101 production/coordination/distribution*"), but no progress was made on this topic due to lack of resources.

In addition, following a couple of submission papers[8] proposed by the Chair, the WENDWG agreed to set up two ad hoc drafting groups:

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[4] *Also Chair of the S-100WG.*
[5] *Strategic Performance Indicator.*
[6] *Ability and capability of Member States to meet the requirements and delivery phases of the S100 implementation plan.*
[7] *Catalogue of Nautical Products.*
[8] *« Think beyond the borders, what comes next » in particular.*

- One, led by the Chair, in charge of the development[9] of a new S-11 Part C – *Guidelines*[10] *for the Coordination and Management of the Production and Distribution of S-100 ENDS.*
- One, led by the Vice-Chair, for preparing amendments to the Guidelines on the Implementation of the WEND100 Principles and for contributing to the revision of the IHO Strategic Plan.

S-11 Part C - Drafting Group Session

Guidelines on the Implementation of the WEND100 Principles – IHO Strategic - Drafting Group Session

The RENCs informed the participants on the development of their S-100 Services in general which look very promising since they cover the full scope of challenges faced by their members. Representatives of the industry shared their vision on the ENDS provision in the future. The main ideas arising from the Stakeholders' session, for the S-100 concept to remain attractive to the end-users, are:

Guidelines on the Implementation of the WEND100 Principles – IHO Strategic - Drafting Group Session

- The first objective for the IHO should not only be to complete the S-101 ENC coverage equivalent to the S-57 ENC's one, but to engage the IHO into the development of a new cyber secure distribution model such as a "*one-stop-shop for all S-100 data services along a given route*"[11].
- Considerations to be given on push *versus* pull cyber secure shore-ship distribution models, to the benefits expected by functional mariners' requirements and considered by manufacturers for the launch of S-100 ECDIS which are: S-102, S-104, S-111, S-129, and then S-128[12].

The WENDWG welcomed the confirmation received from Australia by which the WENDWG-15 meeting will be hosted by the Australian Hydrographic Office in Wollongong from 18 to 20 February 2025.

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9 Work Item N8 of the WENDWG Work Plan 2023-24, approved at IRCC15.
10 Provisional title.
11 ChartWorld presentation refers.
12 And not S-101 only.