

WENDWG Report to the 25th BSHC Conference (VTC)

by Jarmo Mäkinen, BSHC WENDWG representative

1. Status of the work of WENDWG

John Nyberg (US, former Vice Chair) took over the chairmanship of WEND in the end of 2019, after the previous Chair Mr Jamie Mc Phillips (UK) went to GEBCO's Seabed 2030 project. Ms Annika Kindeberg (SE) was elected as a new vice chair in April 2020. Mr Yves Guillam (IHB) acting as a role of secretary.

Chair: Mr. John NYBERG (US)

Vice-Chair: Annika Kindeberg (SE)

Secretary: Yves GUILLAM, IHO Secretariat.

Members: Representatives of Regional Hydrographic Commissions, representatives of IHO Member States, RENCs. Link to [WENDWG Members](#).

2. WENDWG 10 VTC meeting 7-9 April 2020

Due to the Covid-19 pandemic, the 10th meeting of the WENDWG (Worldwide ENC Database Working Group), initially scheduled in Hong Kong, China then in Monaco, was re-arranged by video teleconference (VTC) from 7 to 9 April 2020. Thirty delegates from 19 Member States, the Chairs of the S-100WG, MSDIWG1 and NIPWG2 and the representatives of RENCs/RECC attended the meeting. Directors Mustafa Iptes and Abri Kampfner and Assistant Director Yves Guillam (Secretary) represented the IHO Secretariat.

The meeting agreed to have a limited agenda and concentrate the agenda items related to the development of the WENS Principles that were introduced at WENDWG-9 and then at IRCC-11 and C-3 in 2019.

3. WEND100 (WENS) Principles

WEND100 Principles

WENDWG agreed to adopt the acronym "WEND100 " (instead of WENS) from now for the new set of principles related to the products to be used in S-100 Navigation Systems and to submit this proposal for endorsement at the next IRCC meeting.

WENDWG10 had a long discussion on how the WEND100 Principles should be approached. [Link](#) to WENDWG10 draft WENS Principles (before WENDWG10).

Working group considered supporting papers, comments and presentations aiming to provide a wide understanding of the issues to be addressed when developing the Principles further. Practical cases in relation to the implementation of S-100 based products were raised on S-123 (Marine Radio Services) and S-128 (Catalogue of Nautical Products). Working group adopted a tiered approach in the development of the WEND100 Principles:

- A1: data products fundamental to safety of navigation
- A2: data products that enhance safety of navigation
- B: additional navigation information
- C other marine spatial information

[Link](#) to the tiered matrix

A pragmatic approach was agreed; to prioritize WEND100 development with a first

step on ECDIS/SOLAS navigation, then other categories of navigation. Also a need for clear definitions of what stands for "data", "products", "services", "mandatory", "authoritative", etc.) was highlighted. An adhoc definition group, chaired by Canada, was set up for this purpose.

Way ahead

The WEND100 Drafting Group (BR, FI, FR, IT, NL, TR, UK, US, RENCs, Vice-Chair) was set up to analyse the various comments.

- Drafting group to prepare a consolidated version of the WENS Principles and tiered-matrix (30 Jun 2020)
- WENDWG Chair to submit the final review and conclusions to WENDWG Members for approval (30 July). See Annex 1)
- WENDWG to discuss the iWEND100 Principles during the 26 August 2020 VTC Meeting
- WENDWG to prepare a consolidated proposal on the "WENS" Principles to the endorsement of IRCC12 (Before 15 Sept 2020).
- IRCC12 (5-7 OCT 2020).
- Assembly 2 (16-18 Nov 2020),
- Council 4 (19-20 Nov 2020)

Impact to the WENDWG TORs

The meeting considered that the current Terms of Reference (TORs) of the WENDWG were adequate for the development phase of the WEND100 Principles, and therefore agreed to put on hold the revision of its TORs until a consolidated version of the WEND100 Principles is available and approved as a new IHO Resolution.

3. Next meeting

The meeting (WENDWG 11) is scheduled to be held in the USA, from 17 to 19 February 2021.

4. Actions for the 25th BSHC Conference (VTC)

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

Annex 1: Draft of WEND100 Principles (Version 2.0, 30 Jul 2020)

Annex 1

PRINCIPLES OF THE WEND FOR S-1XX PRODUCTS (WEND-100)

(WEND-100 drafting group, version 2.0)

1. Introduction

1.1. The purpose of WEND-100 is to ensure a world-wide consistent level of high-quality, updated official nautical and hydrographic S-100 based products (S-1XX products) is available through integrated¹ dissemination services that support current and future hydrographic carriage requirements of Safety of Life at Sea (SOLAS) Chapter V (SOLAS/V) and other requirements of the International Maritime Organization (IMO), in particular the Performance Standards for Electronic Chart Display and Information Systems (ECDIS). In addition, the same integrated services should be available for mariners not subject to carriage requirement and the provisions of ECDIS, and to all other users supporting maritime activities.

1.2. SOLAS/V regulation 9 requires contracting Governments to “arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information for safe navigation”. For this purpose, and taking into account the implementation of maritime services in the context of e-navigation, the International Hydrographic Organization (IHO) and partners have developed S-100 standards and specifications for digital nautical and hydrographic S-1XX products that can functionally replace their analog and digital predecessors. The dissemination services encompass reliable, integrated and secure delivery of these S-1XX products (including their updates) to the end-user as part of “publication, dissemination and keeping up to date of all nautical information”.

2. Applicability

2.1. The WEND-100 principles are aimed at those S-1XX products that are under the purview of the IHO, for instance those to be provided as part of the maritime services in the context of e-Navigation of the IMO e-Navigation Strategy². This does not, however, preclude other S-100 based products to align with these principles, for instance those under purview of the WMO.

2.2. Subject to the characteristics and maturity³ of the S-1XX products specifications a tiered and/or transitional approach is used to apply the WEND-100 principles. The full extent of the WEND-100 principles apply for those S-1XX products that, when used together with ECDIS⁴, are integral to safe navigation. A subset of the WEND-100 Principles described in articles 3 to 8 may apply to other S-1XX products that do not meet this criterion.

2.3. The first tier that is integral to safe navigation covers the production and the dissemination of S-101 ENCs. Until the extinction of the first generation S-57 ENCs (the dual fuel model for the transition from S57 ENCs to S101 ENCs), the existing WEND principles will continue to apply for S57-ENCs⁵ and these WEND-100 principles will apply for S-101 ENCs.

¹ Integrated dissemination services are a variety of end-user services where each service is selling all its nautical and hydrographic S-100 based products, regardless of source, to the end user within a single service proposition embracing format, data protection scheme and updating mechanism, packaged in discrete exchange sets per S-1XX product.

² This specifically concerns:

- a Nautical Chart Service: Service 11 of the MS;
- a Nautical Publication Service: Service 12 of the MS.

³ The intended development of the S-1XX data products is referenced in the IHO Roadmap for S-100 Implementation.

⁴ The IMO determines how nautical and hydrographic S-100 based products will be adopted as part of the ECDIS product specification.

⁵ IHO Resolution 1/1997 as amended- Principles of the Worldwide Electronic Navigational chart Database (WEND) & its Annex (Guidance for establishment of ENC Production boundaries).

2.4. The content and applicability of the principles of the subsequent tiers is subject to proposals by IRCC for consideration by the Council and following decision by the Assembly. This way implementation of S-1XX products can develop over time as IMO and other overarching regulations evolve⁶. Also, S-1XX products can migrate from less to more prescriptive tiers.

2.5. For this purpose, complementary ‘Guidelines on the implementation of the WEND-100 Principle’ are provided as the proposals for this approval process. These should be employed to specify further the applicability of WEND-100 principles for S-1XX products and to facilitate the provision of appropriate S-1XX products coverage within a suitable timeframe.

3. S-1XX product availability

3.1. Member States will strive to ensure that mariners anywhere in the world can obtain up-to-date S-1XX products for all shipping routes and ports around the world.

3.2. Member States will strive to ensure that their S-1XX products are available to end users through integrated, secure and internationally coordinated dissemination services. Additionally, States retain the right to establish complementary S-1XX dissemination arrangements within national jurisdiction and according to national legislation.

3.3. Member states are encouraged to build on the existing RENC structure in order to share common experience, reduce expenditure, and to ensure the greatest possible standardization, consistency, reliability and availability of S-1XX products.

3.4. Dissemination services should ensure that S-1XX products bear the stamp or seal of approval of the issuing authority.

3.5. Member States should ensure the use of the IHO Data Protection Scheme (S-100 Part 15)⁷ for distribution to mariners, to secure data integrity, to safeguard national copyright in data, to protect the mariner from falsified products, and to ensure traceability.

3.6. When an encryption or authentication mechanism is employed to protect data, a failure of contractual obligations by the user should not result in a complete termination of the service. This is to assure that the safety of the vessel at sea is not compromised.

3.7. Noting that accessibility of S-1XX products is also valuable as part of a national or regional Marine Spatial Data Infrastructure (MSDI), the dissemination of these products may be coordinated through the same mechanisms as those established to meet the WEND-100 dissemination services.

4. Rights and Responsibilities

4.1. SOLAS/V, Regulation 9, requires contracting Governments to ensure that “all nautical information” is available in a suitable manner in order to satisfy the needs of safe navigation. With IMO mandatory carriage requirement for ECDIS, there is a consequential requirement to ensure that S-1XX products, as defined by the IHO, are available in a form suitable for use in ECDIS, in current form and as subsequently updated.

⁶ One of these being the UN-GGIM principles on an Integrated Geospatial Information Framework (IGIF) and how these apply to the less restrictive tiers, for instance not integral to safe navigation.

⁷ Where alternative solutions are more appropriate for certain use cases not related to carriage requirements of SOLAS chapter V, they should deliver at least the same level of protection as S-100 Part 15.

4.2. It is expected that Members States will have mature arrangements in place for the issue of S-1XX products and their subsequent updating for waters of national jurisdiction in order to support current and future IMO requirements.

4.3. To meet these IMO (coverage) requirements, Member States will strive to either:

a) Provide the necessary S-1XX product coverage or;

b) Agree with other parties to produce the necessary coverage on their behalf.

4.4. Member states responsible for originating S-1XX products remain responsible for their content and quality (in terms of conformance to standards and consistency) whether they provide it directly or through another party. Member States are encouraged to consider using the existing RENC structure to assist.

4.5. Member States should recognize their potential exposure to legal liability within these arrangements.

4.6. The Member State responsible for originating a S-1XX product is also responsible for providing metadata that is consistent with IHO standards and practices.

4.7. Within the framework and timelines of the WWNWS Members States should disseminate in the form of Marine Safety Information updates, the new information they use to update the S-1XX products for which they are responsible⁸.

4.8. In producing and disseminating S-1XX products, Member States are to take due account of the rights of the owners of source data and previously issued products, honoring any use restrictions or copyrights.

5. Coordination of S1-XX products and dissemination services

5.1. A Member State is normally the S-1XX products producing country for waters within its national jurisdiction.

5.2. When the limits of waters of national jurisdiction have not been established, or when it is more convenient to establish boundaries other than waters of national jurisdiction, countries⁹ may define the boundaries for production of S-1XX products within a bi/multilateral technical arrangement. These limits would be for convenience only and shall not be construed as having any significance or status regarding political or other jurisdictional boundaries.

5.3. In waters of national jurisdiction for which there are no provisions in place for production or dissemination of S-1XX products, the coastal Member State may designate these functions to another provider party. S-1XX products produced and/or disseminated under such arrangements should be offered for transfer to the coastal Member State in the event that the coastal Member State subsequently develops the capacity for these functions. Such transfer should respect the rights of Member States and providing party (see also paragraph 4.8).

5.4. In order to ensure unambiguous safety of navigation, concurrent (“overlapping”) S-1XX products should be avoided, particularly where official, nationally provided products are available¹⁰. A unique producing authority should exist in any given area for each S-1XX product integral to safe navigation when used together with (future) ECDIS¹¹, though the same unique authority need not provide all S-1XX products.

⁸ In line with SOLAS/V regulation 4.

⁹ These could be Members States and non-Member States.

¹⁰ The mechanism of IHO resolution 1/2018 on the elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation can be applied to resolve conflicting S-1XX data products.

¹¹ During the dual fuel period for the transition from S57 ENCs to S101 ENCs, Member States S-101 coverage should mirror their S-57 coverage in order to avoid ‘cross overlapping’.

5.5 Member States will address coverage of S-1XX products on a regional basis through Regional Hydrographic Commissions (RHCs), and the WENDWG will monitor the overall coverage on a global basis, reporting to IRCC¹².

5.6. The applicable RHC may facilitate arrangements for production and dissemination of S-1XX products. RHCs should engage with data owners, product and service providers, and other stakeholders as appropriate to ensure that a coordinated and cohesive regional approach is considered¹³. Also, the existing RENC structure may facilitate co-operation between individual Member States and support RHC's to achieve appropriate S-1XX product coverage.

6. Maintenance and Improvement of product and dissemination Services

6.1. Member States are encouraged to work together on data capture, data quality, and data management. To the extent possible, data should be widely shared to support continual updates and improvements of S-1XX products.

6.2. Technically and economically effective solutions for updating S-1XX products are to be established conforming to the relevant IHO and IMO standards. The updating of the various S-1XX products should adopt current dissemination technology and be at least as frequent as previous dissemination mechanisms for data products.

7. Quality Management

7.1. S-1XX product producers and/or dissemination service providers should consider a documented Quality Management System to ensure high quality of work. When implemented, this should be certified by a relevant body as conforming to a suitable recognized standard; typically this will be ISO 9001.

8. Mutual Assistance and Training

8.1. Member States are requested to participate in S-1XX capacity building efforts developed nationally, regionally, and through the IHO, by providing subject matter experts, venues, training materials, and open-source applications. Member States are encouraged to coordinate these capacity building activities within the framework of the IHO Capacity Building Sub-Committee (CBSC). The S-1XX producing Member States are also encouraged to collaborate on production support activities/capacity building via the existing RENC structure.

¹² Level of success of coverage is determined by Strategic and Work plan performance indicators.

¹³ In line with article 15 of IHO resolution 2/1997 as amended on the Establishment of RHCs.