

**Paper for Consideration by WENDWG
Development of WENS Principles**

Submitted by:	WENDWG Chair
Executive Summary:	Re-introduction of the WENS Principles with the aim to reach initial consensus at WENDWG-10, and then prepare submission for endorsement at IRCC-12 (June) then C-4 (October), not excluding a possible introduction at A-2 (April) as part of the report on the S-100 Implementation Strategy.
Related Documents:	WENDWG9-05A, IRCC11-07D2, IRCC11-07D3, C3-04.2A and C-3 Summary Report.
Related Projects:	S-100 Implementation Roadmap (C3-03.6A Rev1)

Introduction / Background

1. During the WENDWG-9, the need to upgrade the WEND Principles was discussed, shifting it from a pure ENC focus to one that represents a more comprehensive suite of S-100 based services in support of Council actions C2/30 and C2/31. A drafting group to collect comments regarding the WENS (*Worldwide Electronic Navigation Services*) Principles was authorized under action WENDWG9/22 and was charged with submitting a progress report to IRCC-11. Progress reports were presented to both IRCC-11 and Council-3 (C-3). In general, both bodies agreed that the proposed course of action was correct and that the transition to “WENS” principles is needed. The Council agreed that the proposed timeline (ANNEX 1), aiming for endorsement by Council-4, was acceptable.
2. During C-3, it was also 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. In other words, and noting the “WENS” acronym and title still needs to be discussed and approved at the WENDWG level, the WENS Principles are more than an update of the WEND Principles and are not intended to supersede the WEND Principles for now (C-3 Summary Report, Section 4.2 *Worldwide Electronic Navigation Services (WENS)*, refers).

Analysis/Discussion

3. The WENS Principles Drafting Group Coordinator received comments from six Member States, five of which volunteered to be members of the Group. Comments regarding the WENS direction were generally positive, but there were some notes of caution regarding scope and timing.
4. ANNEX 2 of this document presents an edited version of the principles according to initial comments with notes for discussion included.

Conclusions

5. WENDWG-10 aims to gain basic consensus regarding the draft WENS principles, including the consideration of endorsing agreed upon data principles such as those being developed as part of the UN-GGIM Integrated Geospatial Information Framework’s Strategic Pathway 4, Section 4.5 on Data included in ANNEX 3 of this proposal.

Recommendations

In the context of the S-100 Implementation Strategy:

6. Recommend that Member States and RENCs (which play a key role today in data qualification, encryption and have set up a harmonized distribution process) come to the WENDWG-10 prepared to edit and make decisions regarding the WENS Principles.
7. Recommend that Member States consider the fact that “WENS” stands for Worldwide Electronic Navigation Services and whether the name should be reconsidered as well as the attached priorities in the WENS Principles.

Justification and Impacts

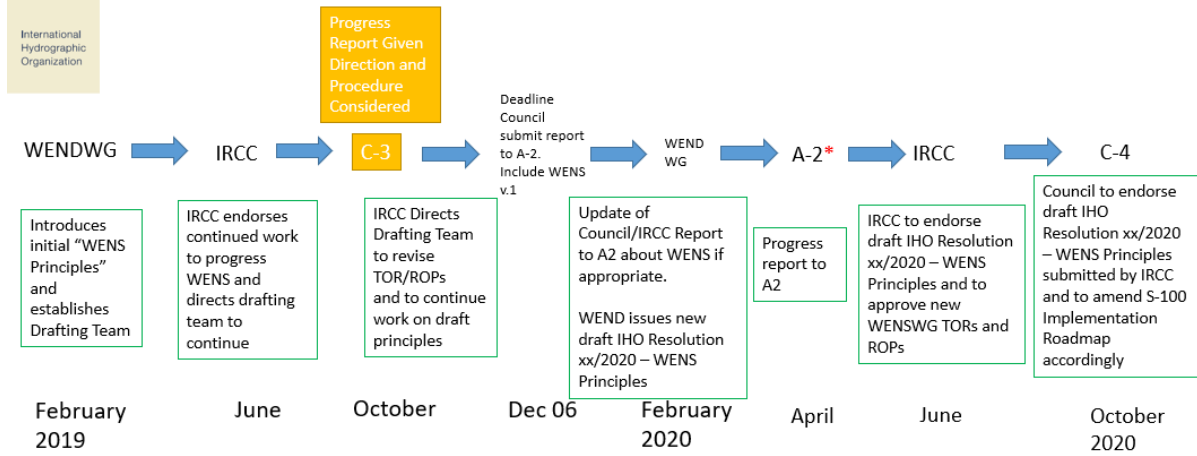
8. The IHO is on the cusp of realizing the implementation of numerous S-100 based services over the upcoming decade and beyond. It needs to develop recommendations for the distribution, boundaries, and governance of these new services as it did regarding ENC's. The WENDWG has a strong history of providing this guidance and is well suited to expand its mandate to become the WENSWG or renamed body.

Action Required of the WENDWG

9. The WENDWG is invited to:
 - a. note the work that has been done developing the WENS Principles
 - b. prepare to discuss and edit the Principles with the aim of reaching WENDWG consensus, noting that these Principles should become a key component of the S-100 Implementation Strategy
 - c. consider the impact of this development on the name and TORs of the WENDWG
 - d. anticipate the possible impacts and consequences of the implementation of the WENS Principles (if and when endorsed and approved) on the RENCs capabilities, governance and activities and provide subsequent recommendations
 - e. consider taking advantage of other global initiatives (such as the UN-GGIM) with the addition of relevant (IHO specific) thematic considerations regarding navigation services



PROPOSED WENS PATH TO APPROVAL



* A-2 endorses IRCC Report with WENS principles progress report and calls for continued work concurrent with S-100 Roadmap to Council, IRCC, HSSC, IHO oversight annually. Report back at A-3

C-3, IHO Secretariat, Monaco, 15 – 17 October 2019

WORLDWIDE ELECTRONIC NAVIGATION SERVICES (WENS) PRINCIPLES

Note

- *There has been a request to re-name the WENS.
- *There has been a request to keep the name WENS.

(WEND WG working draft version, 28 August 2019)

The purpose of WENS is to ensure that high-quality, updated official hydrographic services are available to mariners worldwide. These services support hydrographic carriage requirements of Safety of Life at Sea (SOLAS) Chapter V (SOLAS/V), and the requirements of the International Maritime Organization (IMO) Performance Standards for Electronic Chart Display and Information Systems (ECDIS). In addition, these same coordinated services must be available to support mariners not subject to the provisions of ECDIS and should help to facilitate the transition from a paper to digital environment.

Applicability

SOLAS/V, requires signatory States to provide hydrographic services to enhance safety of life at sea. The International Hydrographic Organization (IHO) and partners have developed standards for digital hydrographic services that can functionally replace their analog predecessors. The principles below apply to these digital hydrographic services intended to meet a nation's obligations under SOLAS and include high priority specifications referenced in the IHO Roadmap for S-100 Implementation:

S-101 <i>Electronic Navigational Chart</i>	S-122 <i>Marine Protected Areas</i>	S-126 <i>Marine Physical Environment</i>
S-102 <i>Bathymetric Surface</i>	S-123 <i>Marine Radio Services</i>	S-127 <i>Marine Traffic Management</i>
S-104 <i>Water Level Information for Surface Navigation</i>	S-124 <i>Navigation Warnings</i>	S-128 <i>Catalogue of Nautical Products</i>
S-111 <i>Surface Currents</i>	S-125 <i>Marine Navigational Services</i>	S-129 <i>Under Keel Clearance Management</i>

NOTES:

- *These do not include specifications beyond S1xx. For example Weather Warnings, Inland ENC, Aids to Navigation, or Sea Ice. Removed S-121 per IRCC guidance.
- *Reduced redundant introductory text.
- *In reference to IRCC comment regarding "mandatory" carriage, note that "mandatory" in this case refers to ECDIS and says that we are obligated to provide services that are compatible with ECDIS, not that the new services are "mandatory" at this time.

1. Service Provision

1.1. Member States will strive to ensure that mariners anywhere in the world can obtain up-to-date services for all shipping routes and ports around the world.

1.2. Member States are encouraged to distribute their services through compatible and coordinated network distribution systems to reduce distribution complexity and risk, and to ensure the greatest possible standardization, consistency, reliability and availability of services.

NOTES

*Should distribution of these services all be the responsibility of the RENCs? The provision intentionally does not specify a means of distribution in this version, just that services be compatible and coordinated.

**"Cost" has been removed and a draft (new provision) has been suggested as 1.2a.

1.2a Member States should strive to ensure that services are not cost prohibitive, prioritizing safety above profit.

1.3. Source and authority of services should be preserved in the metadata and remain available to the end user.

1.4. Member States should use the IHO Data Protection Scheme (S-100 Part 15) based for distribution to end users, to ensure data integrity, to safeguard national copyright in data, to protect the mariner from falsified products, and to ensure traceability. When an encryption 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.

1.5. Noting that the content of many of these services are also valuable as part of a national or regional Marine Spatial Data Infrastructure (MSDI), the coordination and dissemination of these services may be coordinated through the same mechanisms as the services intended for maritime navigation.

2. Rights and Responsibilities

2.1. SOLAS/V, Regulation 9, requires Contracting Governments to ensure that hydrographic products and services are available in a suitable manner in order to satisfy the needs of safe navigation. With mandatory carriage of ECDIS, there is a consequential requirement to ensure that such services, as agreed by IMO, are available in a form suitable for use in ECDIS, in current form and as subsequently updated.

2.2. To meet their national obligations under SOLAS, Member States may either:

a) Provide the necessary services, covering waters bounded by the seaward limit of their Exclusive Economic Zone, or

b) Agree with other States to provide the necessary service coverage on their behalf.

All States retain the right to provide the services within national jurisdictions and according to national legislation. However, Member States should strive to ensure that comprehensive service coverage is available in all areas regardless of producer.

Notes

*This may be too complex to include here at this stage.

*Jurisdictions should be defined.

*Strengthened coverage statement.

*Added national legislation statement in accordance with IRCC guidance.

2.3. Member States should recognize their potential exposure to legal liability for the quality of their hydrographic services.

Notes

*MS should strive to ensure that the safety benefits of services outweigh the risks associated with service liability.

2.4. The nation responsible for originating the data is also responsible for providing metadata on source, methods of collection, and data quality. Metadata should be consistent with IHO standards and practices.

Notes

*Last line added to help ensure consistency with approach to metadata.

2.5. National entities are responsible for advising the issuing Hydrographic Office (HO) of available information and for advising the NAVAREA coordinator of Marine Safety Information in a timely manner.

2.6. In producing services, 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.

3. Coordination of Services

3.1. Redundant services should be avoided, particularly where official, nationally provided services are available. A single producing authority should exist in any given area for each service, though the same authority need not provide all services.

Notes

*Need to recognize the possibility that some services might be better with competition, weather for example. However, the principles should help to ensure that services be designed and distributed with the intent of minimizing the number of systems and distribution mechanisms required to use them aboard ships.

3.2. When the limits of waters of national jurisdiction have not been established, or it is more convenient to establish boundaries other than established national boundaries, producing countries may define the boundaries for hydrographic service provision within a bilateral (or 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.

Notes

*We have not been able to realize this with regard to ENC, so maybe it needs stronger language. Could add something like, "Services will not be released when significant overlaps exist."

3.3. In international waters, the applicable regional hydrographic commission may coordinate limits of services. In areas of national jurisdiction for which there is no agreed hydrographic service provider nation, the coastal State may designate the service provider nation. Services produced under such arrangements should be offered for transfer to the coastal State in the event that the coastal State subsequently develops the capacity to maintain the services. Such transfer should respect the rights of the coastal State and the commercial rights of the producer nation.

Notes

*May need to expand the roles of the RHCs. Each RHC should have a Service Coordination Committee. Much of the WENS data currently sits outside RHC remits.

4. Maintenance and Improvement of Services

4.1. Member States are encouraged to work together on data capture and data management. To the extent possible, data should be widely shared to support continual updates and improvements of hydrographic services.

4.2. Technically and economically effective solutions for updating services are to be established conforming to the relevant IHO standards. The updating of services should be at least as frequent as that provided by the nation for previous analog services.

5. Standards and Quality Management

5.1. Service providers and distributors should employ a documented Quality Management System to help ensure high quality of hydrographic services. When implemented, this should be certified by a relevant body as conforming to a suitable recognized standard; typically this will be ISO 9001:2015.

Note

*Strengthened statement by putting onus on service providers and distributors, not WENS Principles.

5.2. Services provided shall be in conformance with all approved relevant IHO, IMO and World Meteorological Organization (WMO) standards, when they are available.

Note

*Added WMO in accordance with IRCC guidance.

6. Mutual Assistance and Training

6.1. Member States' HOs are requested to participate in 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 capacity building activities with the IHO Capacity Building Sub-Committee (CBSC). The goal of this capacity building is to increase the availability of high-quality hydrographic services globally.

Note

*Added reference to the IHO CB Sub-Committee.

ANNEX 3

DRAFT GGIM Integrated Geospatial Information Framework's Strategic Pathway 4, Section 4.5

There are specific principles and elements for managing geospatial information to promote consistent data governance, management, discovery, sharing and reuse so that data organizations may meet their obligations to government and the user community. These principles also need to be embedded into acts, policies, and directives for update/compliance and integration into business practices. The guiding principles for data are:

- **Governance:** High quality authoritative datasets are delivered through designated data governance roles and responsibilities. Data governance roles are mandated for each dataset to ensure responsibility for the integrity and quality of data.
- **Consistent Identification:** A common data dictionary, vocabulary, ontology and persistent identifies are applied to the identification of data to enhance accessibility, manage effective use of data, and avoid duplicated collection or purchase.
- **Quality Management:** Quality management processes are used to manage the currency, completeness, accuracy and consistency of data for a specified purpose.
- **Metadata:** Appropriate metadata is applied according to standards and used to accurately define and describe geospatial data, including content, geographic extent, purpose, characteristics, currency and provenance etc., together with contact details for further information.
- **Standards:** Appropriate standards are adopted and enforced throughout the data lifecycle to enhance integration and interoperability of individual and disparate data sets.
- **Accessibility:** Easy, efficient and equitable access to spatial data through common geospatial platforms where technology, data formats, organizational arrangements, licensing, location, costs and conditions do not inhibit its use.
- **Reusable Formats:** Data is in a form suitable for further value-adding by internal and external users.
- **Authoritative:** Data is managed responsibly by the designated data custodian to eliminate the proliferation of duplicate data sets. The notion is to collect once and use many times.
- **Timeliness:** Data is managed according to priority, and where required,

is maintained as close to real-time as possible.

- **Provenance:** The origin and quality of data is readily accessible to the user via metadata so that they can determine if it is ‘Fit for Purpose’
- **Integrity:** The interrelationships between data themes collected by multiple agencies are managed with topological integrity.
- **Demand Driven:** Data acquisition and maintenance is aligned to user needs and requirements to achieve optimal resource allocation.
- **Efficiency:** Geospatial data products are differentiated as close as possible to the user to create more opportunities for reuse along the supply chain.
- **Security:** Data are held with adequate provision for long-term care including disaster recovery and backup procedures, are disposed or archived in accordance with government regulations, and considering technological advancements.
- **Respected Rights:** Confidentiality, privacy, intellectual property rights and the security of sensitive information are preserved, and the sharing of Indigenous knowledge is contingent upon consent of the knowledge holders in alignment with UNDRIP principles.