



## 2<sup>nd</sup> SESSION OF THE ASSEMBLY

# REPORT OF THE IRCC on the outcome of the recent IRCC meeting in October 2020

**1. Chair:** Mr Thomas DEHLING (Germany)  
**Vice-Chair:** Mr John Nyberg (USA)

**2. Membership:**  
 See Annex A

**3. Meetings:**  
 IRCC12 VTC 6-7 October 2020

### Introduction

This document reports on the progress of the ongoing implementation of the Work Programme 3, especially the developments since the last report to the Council in 2019. Due to CoVID-19 IRCC-12 has been conducted before A-2.

The twelfth meeting of the Inter-Regional Coordination Committee (IRCC12) was postponed from June 2020 and was held online, from 6 to 7 October 2020. The IRCC reviewed the reports and activities of its subordinate bodies and the RHCs and considered the need for enhancing regional coordination and cooperation. IRCC also considered the outcomes of the 3rd meeting of the IHO Council (C-3), acknowledged the accomplishments and challenges of the Capacity Building programme and the IBSC, examined the developments on Crowdsourced Bathymetry and ocean mapping activities, and considered issues related to the Worldwide ENC Database (WEND), especially the development of WEND-100 principles.

### Difficulties and challenges yet to be addressed

Due to CoVID-19, IRCC and most of the subordinate bodies and RHCs had to conduct their work and especially meetings using online means. That made it very difficult to execute all relevant issues and they had to concentrate on the most important topics. Virtual meetings were shorter compared to regular meetings and worked quite well. A good preparation and provision of documents well in advance are crucial for the success. The bodies profited from the fact that

most of the participants know each other quite well. A positive effect was a higher number of participants and more frequent meetings in several sub-committees.

Beside that extraordinary situation, there is no significant change to the difficulties and challenges reported to C-3.

## **Conclusion**

### **Regional Hydrographic Commissions (RHCs)**

1. The input from RHCs is provided in a separate report assembled and presented by the IHO Secretariat. To avoid duplication, reference is made to that report.

### **Capacity Building**

2. The 18th Meeting of the IHO Capacity Building Sub-Committee (CBSC18) took place in June 2020 as an online event. The CBSC updated and adjusted the 2020 CB Work Programme (CBWP) and approved the 2021 CBWP considering the priorities identified by the Sub-Committee with respect to the IHO CB Strategy, the available resources and potential additional resources. The COVID 19 pandemic had a significant impact in the CB activities. Several projects could not be executed in 2020, most of them had to be postponed, others will have or had to be changed to more digital learning methods.
3. The surplus estimated for the end of 2020 will therefore urgently be needed to execute the 2021 WP. In relation with the 2021 WP the accepted submissions would need funds of about 1,520,000 € and the Work Programme allocates about 1,260,000 €.
4. The funds to the CB Program are based on the one hand on the direct input from the IHO fund, but on the other hand on a significant and generous financial contribution from RoK and Japan. For the 2020 CBWP, the Republic of Korea (RoK) contributed with more the 320.000 Euros with almost all funds earmarked to sponsor students from IHO Member States for the Category "A" Hydrographic Survey Program at USM, the Training for Trainers (TFT) project and a Category "B" Hydrographic Survey Program held at KHOA, Busan, RoK. Japan continues to provide its important contribution through the Nippon Foundation (NF) by funding CB training projects. The NF has provided a financial contribution to the IHO to completely fund the NF-IHO GEOMAC Project. The NF is substantially funding other projects outside the direct context of the IHO CB. Several MS provide direct contribution or support for IHO CB activities. This can be a.o. the provision of facilities, trainers, other personnel, advice, etc. The CB programme depends on these contributions.
5. Measuring the effectiveness and efficiency of CB has been challenging in the past. A system to measure the improvements of MS in their capacity is under development, based on a regional estimation by the CB Coordinators. However, to implement the system is an ongoing item and needs some refinement work (ACTION C3/25). This system is oriented by the expected effects of CB support, not on the achievement of the CB activities.

6. IRCC noted the significant effort from CB Coordinators to assess the needs in the region, to identify national and regional projects in contributing to the CBWP and coordinating the support for countries in need.

### **E-Learning**

7. As a positive effect of the postponement of A-2, the Proposal 3.3 to A-2 of an IHO e-Learning Center proposed by Republic of Korea (RoK) has been refined and further possible steps have been developed by RoK and CBSC before A-2. According to ACL19, it was advised to discuss the PRO 3.3 and following amendments during the Capacity Building Sub-Committee meeting, to then submit it for consideration to the Assembly.
8. The importance of E-Learning, especially in this COVID pandemic situation is evident. CBSC especially worked on the way of implementation of such a center into the IHO work. It was decided to establish an e-Learning Project Team (PT) with members from CBSC, IBSC, other IRCC subordinate bodies, IHO Secretariat and interested Member States to work together with KHOA "in the development of the structure and framework of an IHO e-Learning Center". The Project Team proposed, if PRO 3.3 will be approved at A-2, that the establishment of the IHO e-Learning Center should be under CBSC, setting up a Steering Committee and a Secretariat for efficient implementation. The initial requirements were established and it was agreed to consider the practical exercise aspects when developing the e-Learning guideline and curriculum as required by the nature of hydrography. The PT will thus continue to work with RoK to establish the Center by A-3. Meanwhile, Member States who have experience in developing and providing e-Learning contents are invited to actively share the resources and experience.
9. It has to be highlighted that the definition of e-Learning is meant in its widest sense and different kinds of training contents could be included in this definition, which will allow the inclusion of several training materials available to the Member States.
10. IRCC endorsed the establishment of an IHO e-Learning Center and the related decisions of CBSC18 regarding PRO-3.3. (see Annex B and recommendations). It also supported the e-Learning Project Team in establishing the IHO e-Learning Center and developing an e-Learning guideline in cooperation with RoK. It invited Member States who have experience in developing and providing e-Learning contents to share their resources and experiences to the e-Learning PT.

### **IHO Education Requirements**

11. In 2020, the IBSC issued the Guidelines for the Implementation of the Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (Ed 2.1.1, March 2020) and the Frequently Asked Questions (FAQ) (Edition 1.0.0, March 2020). IRCC acknowledged the work done by the Board in the delivery of the documents.
12. At the IBSC43 meeting fifteen submissions were reviewed, 1 was recognized, 5 recognized with conditions and 9 not recognized. In October-November 2019 the Board also held a workshop meeting in Singapore to review some inter-sessional submissions, the annual reports and work on the standards companion documents.

13. The main problem encountered remains with the quality of submissions, which implies an increased work for the institutions, but also for the Board. For each program submitted there would be normally more than one review.
14. The Board received letters from several institutions regarding their necessary modified teaching strategy to deal with the impact of COVID-19. In summary, it can be stated that the institutions adapted very quickly and well, developing and implementing remote learning strategies for the theoretical classes and delayed the delivering of the practical classes for the end of the respective lockdowns with the necessary safety measures implemented.

### **Empowering Women in Hydrography**

15. The Canadian Hydrographic Office presented this item, stating the need to overcome the large imbalance in the participation of women in maritime related domains such as Hydrography. Many maritime related organizations recently have started this change with symposiums, programs and activities. Organizations are encouraged in removing barriers for women, increasing the representation of women at higher echelons, as subject matter-experts and in policy-making process taking advantage of having gender-diverse teams at all levels.
16. Under the UN decade of the Ocean Canada generously offers a special grant and contribution fund that could go up to 68000 euros/year during three years, to which IHO could apply. The fund finances up to 75% of the project costs. It will be important to have also the collaboration of other member states, not only to reach the necessary 25%, but to increase the dimension of the project. As an example, NOAA is providing in-kind support. A workshop is scheduled for May 2021 to present and discuss proposals.
17. IRCC supports the adoption of this new work item of Empowering Women in Hydrography (EWH) and thanks Canada for its generous offer. The Assembly is invited to approve an action for the Secretariat to negotiate and sign a Cooperation agreement with Directory of Fisheries and Oceans Canada for funding.
18. Subject to Assembly approval and confirmation by the Council, IRCC will task the CBSC to work out the EWH project plan in further detail, including coverage of relevant parts to be funded, to propose project management arrangements and define suitable key performance indicators.
19. IRCC recommends MS to consider to participate in the Empowering Women in Hydrography project.

### **MSDI and UN-GGIM**

20. Dr Mathias Jonas, IHO Secretary General, represented the IHO at the last United Nations Committee of Experts on Global Geospatial Information Management (UNGGIM) remote session. IHO made a substantial contribution through the Working Group on Marine Geospatial Information and the meeting took note of the ongoing efforts of the Working Group to implement the Integrated Geospatial Information Framework (IGIF) within the marine domain. MS are invited to actively participate in the

UN-GGIM Marine WG and to liaise with their respective member in UN-GGIM. The notice that IHO is about to establish an Innovation and Technology Laboratory in Singapore was very well received as well.

21. IRCC encouraged the GEBCO GC to liaise with Seabed 2030 Project Team and with the RHC CSB/Seabed 2030 Coordinators, in order to establish a common methodology and provide regional analysis prior to RHC meetings.
22. IRCC encouraged all Member States to make existing seabed mapping data available for use by Seabed 2030 in the GEBCO Grid.

#### **Ocean Mapping /Crowd Sourced Bathymetry (CSB)**

23. IRCC encouraged Member States to support the CSB initiative with positive actions, such as requiring all research vessels to collect bathymetric data for later uploading, when on passage or when it does not interfere with other research activities.
24. IRCC encourages RHCs to support the modification of the current “RHC Seabed 2030 Coordinator” to a joint “RHC CSB/Seabed 2030 Coordinator” and provide the identification of the Coordinators
25. IRCC endorsed the e-publication of B-12 (Guidance on Crowdsourced Bathymetry) and its use as an example for other IHO publications.

#### **WEND-100**

26. Council instructed the IRCC to task the WENDWG (C2/30 refers) 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. The IRCC has completed this task and the WENDWG established a drafting group to re-write the WEND principles to include the full suite of navigation services to be offered through the S-100 suite of product specifications. The WENDWG presented a progress report and a first draft edition of the Worldwide Electronic Navigation Services (WEND-100) to IRCC12.
27. The Principles will be followed by an implementation guide that provides specific details regarding S-100 specifications beyond S-101. The principles encourage data availability anywhere in the world, distribution along with data protection and also addresses the avoidance of service duplication, coordinated data management, quality management, and assistance and training. The principles also noted the capacity Building.
28. IRCC commended the work and highlighted that the draft was a result of some compromises made, in particular on the issues of addressing overlapping ENC's, which is a particular concern under the S-100 framework. IRCC endorsed the draft as version 1.0 and the path forward of the new WEND-100 Principles.
29. The Assembly is invited to discuss the impact of these new WEND100 Principles on the S-100 Implementation Strategy.

### **Elections of Chair and Vice-Chair**

30. IRCC Chair Parry Oei stepped down after six years of chairmanship. He matured and enhanced the work of the IRCC significantly during that period. The IRCC elected unanimously Mr Thomas DEHLING (Germany), the former Vice-Chair as new IRCC Chair and Mr John Nyberg (USA) as new IRCC Vice-Chair.

### **Recommendations and call for directions**

The Assembly is invited to:

- a. note the report of the IRCC;
- b. support A-2 Pro 3.3. from ROK and respective recommendations from CBSC/IRCC;
- c. acknowledge the significant effort from CB Coordinators to assess the needs in the region, to invite Member States to identify national and regional projects that may contribute to the CBWP and to coordinate the support for countries in need;
- d. approve an action for the Secretariat to negotiate and sign a Cooperation agreement with Directory of Fisheries and Oceans Canada for funding of the Empowering Women in Hydrography initiative;
- e. recommend MS to consider to participate in the Empowering Women in Hydrography project;
- f. discuss the impact of the new WEND100 Principles on the S-100 Implementation Strategy;
- g. take any other action considered appropriate.

Annex A - IRCC Membership

Annex B - CBSC Position on Assembly 2 Proposal 3.3

Annex C - WEND-100 Principles

Annex D - Path forward of the new WEND-100 Principles



**CBSC position on Assembly 2 Proposal 3.3**

1. CBSC recognizes the importance and very high potential of distant learning or e-learning for the improvement and extension of Capacity Building activities in hydrography.
2. CBSC specifies e-learning in this proposal as all forms of learning, where electronic or digital media are being used for presentation and distribution of learning material and/or to support communication in learning.
3. CBSC is aware that the CoVID-19 pandemic and its consequences puts much more pressure on the development of e-learning means.
4. CBSC sees that e-learning development is extremely limited with the current capabilities of the IHO CB Fund.
5. CBSC therefore welcomes the initiative and generous offer from Republic of Korea to establish and support an IHO-E-Learning Center, to provide the infrastructure and to cooperate with IHO, its Member States and industry.

CBSC suggests to further develop the structure and framework of an IHO E-Learning-Center together with ROK and IBSC by setting up a Project Team and to report to IRCC12, so this can be taken to A-2, where the inputs from the CBSC are expected as in ACL-19.

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

(WEND-100, version 1)

### 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)<sup>1</sup> through integrated<sup>2</sup> 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 the S-100 Universal Hydrographic Data Model and S-100 products specifications to be used 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 Strategy<sup>3</sup> including support to route monitoring and voyage planning. 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. The framework for the WEND-100 principles is provided by this resolution. Subject to the characteristics and maturity<sup>4</sup> of the S-1XX products, specifications a transitional approach is used to apply those WEND-100 principles to S-1XX products.

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<sup>1</sup> These S-100 dependent products will be referred to in these principles by the designation "S-1XX products" or "S-100 based products".

<sup>2</sup> 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.

<sup>3</sup> This specifically concerns:

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

<sup>4</sup> The intended development of the S-1XX products is referenced in the "Roadmap for the S-100 Implementation Decade".

- a) The full extent of the WEND-100 principles applies to the production and the dissemination of S-101 ENCs. Until the full retirement of the earlier S-57 ENCs, the existing WEND principles will continue to apply for S57-ENCs<sup>5</sup> and these WEND-100 principles will apply for S-101 ENCs<sup>6</sup>.
- b) Incrementally the full extent or specific sets of the WEND-100 Principles will apply to the other S-1XX products.

2.3. Complementary 'Guidelines on the implementation of the WEND-100 Principles' will detail further the applicability of WEND-100 principles for S-1XX products other than S-101 ENC's, and will facilitate the provision of appropriate S-1XX products coverage within a suitable timeframe. As such the 'Guidelines on the implementation of the WEND-100 Principles' are iterative in nature in order to accommodate the transitional approach.

2.4. The 'Guidelines on the implementation of the WEND-100 Principles' are subject to an approval process with proposals by IRCC for consideration by the Council and following decision by the Assembly. This way Members States control the implementation of S-1XX products over time as IMO and other overarching regulations or guidelines evolve<sup>7</sup>.

### **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)<sup>8</sup> 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.

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

<sup>6</sup> Until retirement of their S57 ENCs, Member States S-101 coverage should mirror their S-57 coverage in order to avoid 'cross overlapping'.

<sup>7</sup> One of these being the UN-GGIM principles on an Integrated Geospatial Information Framework (IGIF) and how these apply to safe navigation and other use cases.

<sup>8</sup> 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.

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.

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 States<sup>9</sup> to provide the necessary coverage on their behalf.

4.4. Member States responsible for producing S-1XX products are also responsible for the validation of content, conformance to standards and consistency. 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. Member State responsible for producing an S-1XX product are 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, the new information they use to update the S-1XX products for which they are responsible<sup>10</sup>.

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 S-1XX products and dissemination services**

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

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<sup>9</sup> In line with SOLAS/V Regulation 2.

<sup>10</sup> In line with SOLAS/V Regulation 4.

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, countries<sup>11</sup> 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 State. 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 State (see also paragraph 4.3 and 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 available<sup>12</sup>. A unique producing authority should exist in any given area for each S-1XX product when used together with (future) ECDIS<sup>13</sup>, though the same unique authority need not provide all S-1XX products.

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 IRCC<sup>14</sup>.

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 considered<sup>15</sup>. 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 publications. The updating of the various S-1XX products should adopt current dissemination technology and be at least as frequent as previous dissemination mechanisms.

## **7. Quality Management**

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<sup>11</sup> These could be Member States and non-Member States.

<sup>12</sup> 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 extended to resolve conflicting S-1XX data products.

<sup>13</sup> The IMO determines how ‘nautical and hydrographic S-100 based products’ will be adopted as part of the ECDIS product specification, including the guidelines on voyage planning.

<sup>14</sup> Level of success of coverage is determined by Strategic and Work plan performance indicators.

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

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.

WEND-100 Path Forward

- 1) Submit to Council 4 for progress review
- 2) WENDWG will have a WG 11 meeting (2021) between C4 and IRCC 13 for final WG review  
WENDWG 11 will begin work on implementation guide
- 3) Final WEND-100 will be presented to IRCC 13, then Council 5
- 4) Final WEND-100 will be sent to Member States for approval via CL