

Meso-American & Caribbean Sea HYDROGRAPHIC COMMISSION

25TH MEETING, 3–6 DECEMBER 2024, PANAMA CITY (PANAMA)

Report of the IHO Secretariat

Submitted by: IHO Secretariat

Executive Summary: This paper reports on activities of the IHO Secretariat that may impact the work of the Meso-American and Caribbean Sea Hydrographic Commission.

Status of Membership of the IHO

1. IHO membership now stands at 100, with Cabo Verde in November 2023 as 99th IHO Member and Kiribati in May 2024 as 100th IHO Member (cfr. IHO CL 24/2024). Serbia and Syria remain suspended from Member States rights. One of the main changes resulting from the entry into force of the revised IHO Convention is that, for States wishing to join the IHO that are already Member States of the United Nations, there is no requirement to seek the approval of existing Member States of the IHO.
2. The non-IHO Member States of the MACHC region are Antigua and Barbuda, Barbados, Belize, Costa Rica, El Salvador, Grenada, Haiti, Honduras, Nicaragua, Panama, Saint Lucia, St Kitts and Nevis, St. Vincent and the Grenadines and The Bahamas. Countries who are Member States of the IMO are encouraged to become IHO members and the IHO respectfully repeats its invitation to those non-IHO Member States to accede to the IHO Convention. The IHO Secretariat, in cooperation with the Department of External Relations of the Government of Monaco, stands ready to assist those non-IHO Member States with the application process for membership of the IHO, as recently done towards several non-IHO Member States in other hydrographic regions, and stands ready to pay High Level Visits to those States in the MACHC region not yet IHO Member States.
3. **Recommendation:** *MACHC is invited to continue to promote the benefits of IHO membership in the region via those states acting as chart-producing agency for coastal states that did not run a full hydrographic office, and to encourage and propose to the IHO Secretariat High Level Visits to those States not yet IHO Member States.*

High Level Visit (HLV) to The Bahamas

4. Following the invitation of the Bahamian Ministry of Foreign Affairs dated 7th February 2024 and the policy to enlarge the IHO membership, the IHO Director Luigi Sinapi paid a High Level Visit to the Commonwealth of The Bahamas from 15 to 19 April. The Visit was aimed to resuming discussions on The Bahamas' potential membership to the International Hydrographic Organization, the progress made in the maritime sector of The Bahamas, the way forward to further strengthening the national capacity in the area of hydrography and the future of The Bahamas' charting authority. The importance of having a hydrographic capacity for becoming a Maritime Hub in the Caribbean region was discussed, as a fundamental means to obtain accurate knowledge of the dynamics of the sea, its resources, limits and natural changes, in order to achieve the following two main purposes: *"To optimize The Bahamas' value chains"* like tourism, with the construction of new ports and coastal constructions in order to receive more cruises with larger capacities and also more places to entertain like restaurant and hotels, and *"To achieve a sustainable marine management"* that allows for the efficient exploitation of marine resources, protection of the marine environment and permanent control of erosion and sedimentation phenomena that affect the coastal line.
5. To provide a "Way Ahead" for strengthening the Bahamian national capacity in the area of hydrography, outlining the future of The Bahamas' charting authority, and consolidating the progress made in the maritime sector of The Bahamas, a "Concept Note" was signed by the IHO Director and the Director General of the MFA of The Bahamas. The following are the agreed recommended actions to be taken by the Government of The Bahamas in the next future:

- Consolidate The Bahamas' presence at the regional level by joining the Meso-American and Caribbean Sea Hydrographic Commission (MACHC) as an Associate Member, through the signing of the MACHC Statutes.
- Participate actively in the activities of the IHO's Capacity Building Programme for the MACHC Region.
- Plan - in cooperation with the MACHC Capacity Building coordinator - an IHO Technical Visit to assess the perceived present and future hydrographic requirements of The Bahamas, in order to prepare the Technical Status Report and identify the various areas of work that a national Hydrographic Service should carry out and the existing gaps.
- National Hydrographic Coordination Committee (NHCC) to build in collaboration with other stakeholders (Academia, Research centres, Industry etc.) outreach programmes (workshops / announcements / social media) to raise awareness of the importance of Ocean sciences / hydrography.
- Take steps to identify and allocate appropriate funding to support the creation of a National Authority and a National Hydrographic Service.
- Implement the phases reported in the IHO Publication M2 Ed. June 2018 – The Need for National Hydrographic Services for the creation of a National Hydrographic Service.
- Ministries of Foreign Affairs, Legal Affairs, National Security, Environment and Natural Resources, in cooperation with the Office of the Prime Minister, to present to the Parliament a proposal of an internal regulatory instrument (e.g. a Law) to approve the “Convention on the International Hydrographic Organization” done in Monaco on 3 May 1967, and as amended by the Protocol dated 14 April 2005 that entered into force on 8 November 2016.
- Ministry of Foreign Affairs to send a Note verbale submitting a Letter of Accession to the IHO Convention to the Principality of Monaco through diplomatic channels.

6. **Recommendation:** *MACHC is invited to note the results of the HLV to The Bahamas and facilitate the implementation of the Concept Note signed by the IHO and the Bahamian MFA.*

Outcomes of IRCC16 meeting of interest of MACHC

7. The 16th meeting of the Inter-Regional Coordination Committee (IRCC-16) was held in Ecuador, from 10 to 12 June 2024, hosted by the National Defence Ministry through the Naval Oceanographic and Antarctic Institute (INOCAR). RHCs and HCA Chairs (and those speaking on behalf of those chairs not present at the meeting) focused their reports on the following most important regional key achievements, key findings and lessons learned:

- Revision of the IHO Strategic Plan;
- Harmonized development and implementation of S-100 products and services including all socio-economic benefits (e.g. Decarbonization, Voyage Optimization, Green Corridors and other Green/sustainable initiatives);
- Acceleration of the progress in the readiness of S-100 data migration through several ways such as exchange technology, experience, workshop and seminar between member states;
- Additional resource allocations to be found in order to start S-101 and S-102 production and how to better serve Sub-ECDIS customers with reliable, affordable and easy to access digital navigational products;
- Challenges with S-101 scheming and possible high workload during the dual fuel period, due to parallel production of both S-57 and S-101 ENC's;
- Implementation of the development of hydrographic survey technology and synchronization of the nautical charts in the future;
- Limited sharing of data with DCDB and GEBCO;
- Limited funds availability in the Capacity Building programme proved that strengthening collaboration across RHCs is very beneficial for cooperation amongst coastal states;
- Technical Visits and High-Level Technical Visits are extremely relevant to leverage hydrographic and cartographic activities in coastal states;
- Substantial achievement for enhancing gender balance in hydrography in some RHCs.

8. On the revision of the IHO Strategic Plan, after a brainstorming conducted at the IRCC16 meeting, the Committee agreed on the following topics to report to the attention of the Council: “Clarify addressee of SP (internal, external), adjust language/layout”, “Maintain the 3 Goals but update and refine”, “Targets to better align with strategic objectives”, “Targets to be measurable and identifiable with clear responsibilities assigned”, “SPIs measuring the objective, responsibilities defined, easy to derive, consider changes wisely (comparability)”.

9. **Recommendation:** MACHC is encouraged to report to IRCC the regional needs for a smooth transition from S-57 to S-100 standards.

Outcomes of the 8th Meeting of the IHO Council

10. The Council considered the approved IHO Work Programme and Budget for 2025 and took the following decisions/implemented the following actions of interest of the MACHC:

- Decision C8/11: The Council endorsed the principle of creating *IHO S-100 Sea Trial Areas around the world (Canada on St Lawrence River)*.
- Action C8/12: Council tasked the IHO ISO Cell through HSSC to consider the possibility of developing some *Guidelines for IHO S-100 Sea Trials Areas*.
- Decision C8/17: The Council noted the *achievements of the Joint IHO-Singapore Lab* (conversion S-57 to S-101, S-131 Database, Interoperability S-101 and S-102 on a prototype S-100 ECDIS, availability of ENC S-57 and S-101 on a dual-fuel ECDIS onboard the Italian Tall Ship Amerigo Vespucci for her circumnavigation, etc.).
- Decision C8/21: The Council noted that many RHCs reported on the *importance of CB activities and the need for additional funds especially to support S-1xx service developments in their regions*.
- Decision C8/22: The Council supported by IRCC to develop a proposal on the future framework for an *IHO social Programme (incl. Gender Balance in Hydrography)* as part of the revised IHO Strategic Plan to be submitted to A-4.
- Action C8/25: The Council noted the request from UN-GGIM to *reinforce the relation between the MSDIWG and the Marine Geospatial Working Group of UN-GGIM*, for efficiency reasons, and invited MSDIWG through the IRCC to propose a way forward.
- Action C8/26: The Council tasked the MSDIWG through the IRCC, in liaison with the NIPWG, Protected Seas, ECDIS OEMs, GIS software manufacturers, the UN, IUCN, and IHO Member States, to *coordinate a pilot project aiming to demonstrate the operational implementation of S-122*.
- Decision/Action C8/27a&b: The Council noted the update on the activities of the *IHO Fund Generation PT*, other initiatives regarding additional funding (RENCs, IENWG and the Joint IHO/IMO/IALA/IOC/WMO/FIG/AIEA/IMPA CB initiative in particular) and invited the IRCC to expand the scope of the Fund Generation Team to consider options for charging the IHO digital standards services.
- Decision C8/33: The Council approved the proposed *amendments to Annex 4 of the S-100 Roadmap (Dual Fuel Concept for S-100 ECDIS)*.
- Decision C8/37 – Action C8/38: The Council agreed on the interim establishment of the *IHO Infrastructure Centre in the Republic of Korea (ROK) starting in 2025* under the supervision of the IHO Secretariat and HSSC (supported by the S-100 ICE PT), and that the permanent establishment of the IHO Infrastructure Centre in the ROK should be finally decided by the Assembly (A-4).
- Decision C8/45: The Council noted the proposed theme for the *2025 World Hydrography Day* by the Secretary-General which is: “*Seabed Mapping: Enabling Ocean Action*”.
- Action C8/48: The Council welcomed the proposal from the IHO Secretariat and agreed with the proposed *engagement in the Blue Economy and Finance Forum June 2025 in Monaco and UNOC 2025 in Nice*, encouraged Member States to take advantage of the alignment of IRCC-17 to the Blue Economy and Finance Forum and the UNOC 2025, and to engage early with national delegations to participate accordingly.

- Decision C8/52: The Council invited the Capacity Building Sub-Committee (CBSC) through the IRCC to consider *priorities of additional CB activities for 2025 covered by the 2024 savings with a focus on S-100 related CB activities*.
- Decision C8/57: The Council established the *Strategic Plan Review Working Group (SPRWG)*, agreed to nominate US (Benjamin Evans), NZ (Adam Greenland), and DK (Hendrik Justus Stang) as Chair, Vice-Chair and Secretary of the SPRWG, respectively, and endorsed the proposed TORs and ROPs of the SPRWG. With the *IHO CLs 38/2024 and 41/2024 the SPRWG was established and the ToRs approved*.
- Action C8/62: The Council endorsed the principles of the proposed *IHO Resolution on “Inclusive participation in IHO meetings”* submitted by the ad hoc drafting group and invited the group to add an Annex with (minimum) practical Guidelines derived from the outcome of the survey to assist Member States to host and facilitate online meetings. IHO Resolution and associated Guidelines will be sent to the IHO Member States via CL for their approval.
- Decision C8/72 – 73 – 74: The Council commended the Head Operational Safety, Maritime Safety Division, for his very enlightening *presentation on S100 Implementation from an IMO perspective*. Compliance with the S-100 standards would be required not only for ECDIS systems, but for many other types of equipment used on board ship. In the immediate future, the IMO Maritime Safety Committee would consider proposals for a *new output to develop guidance for a framework for data distribution and global internet protocol (IP) based connectivity*, to standardize the exchange of dynamic data between ship and shore over the internet. Compliance with the IEC standard 63173-2 on secure communication between ship and shore (SECOM) was recommended. *Future events that are in the interest of IHO Member States: a. MSC 109 (2-6 Dec 2024) – b. NCSR 12 (13-22 May 2025) – c. HTW 11 (10-14 Feb 2025) – d. MSC 110 (18-27 June 2025)*.

11. Recommendations:

11.1 MACHC members to note the updated version 3.0 of the *S-100 Implementation Roadmap Ed. October 2023 (and the new version 4.0 to be issued by November 2024)*, the version 1.0 of the *Guidelines on the Implementation of the WEND-100 Principles and its Appendix*, with particular attention to the creation of a new role of *S-100 Regional Coordinator* or the expansion of the role of *Regional Chart Coordinator* to include *S-1xx products*.

11.2 MACHC members are invited to note the progress of the IHO and the Hydrographic Community on the S-100 implementation and to share their national strategies regarding the establishment of national S-100 committees (or similar entities), as appropriate.

11.3 MACHC is invited to represent their requests in the field of Capacity Building, especially those activities related to the implementation of S-100.

11.4 MACHC is invited to continue providing input to IRCC for measuring the IHO Strategic Performance Indicators (SPI) related to the IHO Strategic Plan (2021-2026), and contribute to the works of the SPRWG established to review the IHO Strategic Plan for the period 2027-2032.

11.5 MACHC members are invited to contribute to the IHO Resolution and annexed Guidelines (when issued via IHO CL) on “*Inclusive participation in IHO meetings*”.

Capacity Building Programme

12. The CBSC 21 decided that the funded activities which were not executed in the 2023 CBWP could be carried over to the 2024 CBWP, whilst the CBSC 22 decided that the funded activities which were not executed in the 2024 CBWP will not be carried over to the 2025 CBWP. The 2024 CBWP has 293,265 euros for non-earmarked projects and 790,223 € for earmarked projects. The total of funds available for 2024 is 1,083,488 €. In 2024 the CBWP has returned to the pre-COVID practice of not carrying over incomplete activities from year-to-year. Significant increment of the funds for non-earmarked activities was received from Republic of Korea in 2024 and for 2025 (50% more than in

2024 and equal to 60,000 €). The 2025 CBWP has 280,000 euros for non-earmarked projects and 790,000 € for earmarked projects. The total of funds available for 2025 is 1,070,000€. MACHC has five funded CB activities in the 2024CBWP:

- A-04 - High Level Technical Visit to Colombia
- A-07 - Technical Visit to Costa Rica (from 2023 A-05)
- A-9 - Technical Visit to Honduras (from 2021 A-03, 2022 A-11, 2023 A-11)
- P-07 - Seminar on Raising Awareness of Hydrography
- P-31 MSI (training on establishment of MSI structure and basic MSI procedure) (from 2022-P9, 2023-P35)

and three funded activities in the 2025CBWP:

- A-06 - High Level Technical Visit to Guatemala
- A-07 - Technical Visit - Bahamas
- P-08 - Seminar on Raising Awareness of Hydrography.

13. With specific reference to the 2025 CB Fund, it is worthy to underline the financial contribution from the IC-ENC, which created an “*Opt-in fund*” to support several projects including the IHO CB WP. In 2025, with an IC-ENC Steering Committee Decision SC25/03, IC-ENC decided to support 3 IHO CB activities related to the S-100 Implementation (for a total of 84,000 €), by replicating the Istanbul pilot approach held in 2024 in favor of the Mediterranean and Black Sea Region (MBSHC). The gap between the CB requested non-earmarked activities and those ones funded amounts to 335,000 €, and will be partially covered by the non-earmarked savings from the 2024 CB Fund (estimated to be about 90,000 €) and by planning some CB activities inter-regionally.

14. On helping to fill the 2025 gap, several initiatives external to the IHO are in place at international level. The most important are as follows:

- IRCC Fund Generation Project Team (see point 10): The PT is researching for options for charging the IHO digital standards services to increment the IHO CB Fund.
- Join Capacity Building Coordination Meetings: The 13th Joint IHO/IMO/WMO/IOC/IALA/IAEA/FIG/IMPA Capacity Building Coordination Meeting was held at IHO, Monaco, 13-14 May 2024 to “*Deliver as one*”. The S-100 Implementation roadmap was proposed as Priority 1 deliverable.
- IMO: IHO and IMO are discussing the possibility of having several activities – not yet funded by the 2025 CBWP – to be funded by IMO with a focus on the activities related to the S-100 implementation.
- PRIMAR: A *PRIMAR S-100 Capacity Building Fund* with the purpose of supporting IHO S-100 related capacity building activities was established. Priority is given to the S-100 CB projects related to PRIMAR Members States, secondarily to official IHO S-100 CB projects/activities, in accordance with proposals submitted to the PRIMAR Member States to an *ad-hoc* PRIMAR S-100 Capacity Building Fund Steering Committee (CBFSC).

The above initiatives actually in place, should contribute to reduce the existing 2025 gap (335,000 €) between the proposed non-earmarked activities (615,000 €) and those already funded (280,000 €).

15. In 2024, the following courses sponsored by the IHO and ROK and Nippon Foundation have been approved:

- CAT A courses at USM sponsored by ROK (2 candidates selected for 11th course 2023/2024; 2 candidates selected for 12th course 2024/2025 started in August 2024 with IHO CL 05/2024). CL34/2024 has a call for 2 candidates for the 13th course 2025/2026 with a deadline of 31 December 2024;
- Cat B course in Hydrography from 17 June to 1 November 2024 at KHOA-ROK (10 candidates selected – 3 candidates from MACHC (Jamaica, Suriname and Venezuela) – with IHO CL 15/2024);
- GEOMAC Cat B course in 2024 sponsored by Nippon Foundation (7 candidates selected – 2 candidates from MACHC (Cuba and Venezuela) – with IHO CL 17/2024).

16. The C-55 PT progressed the proposal on the future of the IHO C-55 publication, highlighting that the C-55 PT developed a solution for survey status in countries based on CATZOC provided via the RENCs directly to the IHO Secretariat. IRCC tasked CBSC to liaise with the RENCs and the IHO Secretariat to investigate Member State contributions of CATZOC data to the IHO Secretariat via the RENCs and to proceed with the proposed solution as given to IRCC11 (to populate C-55 Status of Survey for Safety of Navigation purpose). C-55 is an important external IHO document, used by IMO as source for the status of survey and cartography worldwide in supporting the IMO Member State Audit Scheme (IMSAS) programme, and is also a source of data in measuring the Strategic Performance Indicators (SPI) that measure progress against the IHO Strategic Plan 2021-2026. At CBSC22 the Chair reported on the geospatial solution for MSI status of Coastal States on their website. This solution can function for C-55 reporting on MSI and therefore does not require membership input.

17. Ms Lucy Fieldhouse (United Kingdom) is the MACHC CB Coordinator for planning and implementing the regional CB activities.

Empowering Women in Hydrography (EWH)

18. The Empowering Women in Hydrography (EWH) project aims to contribute to more women participating equitably in the field of hydrography and assuming leadership roles within the hydrographic community. Due to additional and continued support from Member States (Belgium, Canada, Denmark, France, Norway, UK and USA) the project continues as supported by the decisions of the IHO Council. 2024 and 2025 activities include:

- 2 opportunities from SHOM (France) training in hydrography (HYDRO-3 / AFHy)
- 3 opportunities to participate in hydrographic and oceanographic survey activities aboard two SHOM research vessels
- Thanks to the Letter of Intent signed between the IHO and the WMU (World Maritime University of IMO), numerous activities on Gender Equality (workshop, webinars, etc.) and the participation at the UN Ocean Decade Conference in Barcelona in April 2024 with a joint WMU-IHO Satellite Event “177. The People We Need for the Ocean We Want: Achieving Gender Equality for the Ocean Decade” were secured.
- NOAA’s (USA) three opportunities for an at-sea experience/advanced training on NOAA hydrographic survey vessels (see IHO CL 22/2024)
- Secondment to IC-ENC on e-Learning Creation (see IHO CL 23/2024)
- 4 internships at the 2024 IBSC intersessional meeting (see IHO CL 36/2024)
- Hiring an EWH assistant at the IHO Secretariat
- Continuation of the Mentoring Programme
- Funding support via UK Gender Balance Fund (see IHO CL 25/2024)
- Establishment of a Diversity, Equity and Inclusion (DEI) Project Team (see call issued with the IHO CL 42/2024).

IHO e-learning Center

19. The IHO e-learning center, established by KHOA, is accessible at <https://elearning.iho.int> or via the main page of the IHO website. An e-Learning Centre Project Team completed guidelines for the proposed composition of a Steering Committee. The CBSC endorsed the guidelines and IRCC approved them. With IHO CL 24/2023 the e-Learning Centre Steering Committee was established. Since its establishment, the IHO eLearning Centre Steering Committee (SC) has formed and met virtually 3 times. The composition of the Steering Committee (SC) is as follows: IHO Director, CBSC Chair, Vice Chair (USA), Secretary (CBSC Vice Chair), 1 member of IBSC and 6 other members. In the absence of a General Manager a General Manager Group has formed from the SC who in collaboration with the System Manager will assess any submitted material (for suitability and technical compatibility), share it with the appropriate IHO WG, facilitate its uploading and make the SC aware of the material. A System Manager is provided by the Republic of Korea to maintain the system. Their continued support is greatly appreciated and will ensure that IHO Members and Non-Members will be able to access important learning opportunities. The SC continue to seek e-Learning material from Member States and partner organizations to be added to the e-Learning Centre platform.

20. Recommendations:

20.1 MACHC members are invited to continue follow and evaluate the possibility to contribute to the CB Programme and focus their requests on the S-100 implementation.

20.2 MACHC members are invited to participate at the EWH project and provide proposals via the specific webpage (<https://iho.int/en/basic-cbsc-ewh>) set up under the Capacity Building Sub-Committee (CBSC) for this project, and respond to the IHO CL 42/2024.

20.3 MACHC members are invited to provide contributions of online learning material to the Project Team established for the IHO e-Learning Center at KHOA.

Maritime Safety Information Services

21. Work by the International Maritime Organization (IMO) on the modernization of the Communications and Global Maritime Distress and Safety System (GMDSS) continues with the ongoing review and updating of the SOLAS chapters III and IV and on the related and consequential amendments to existing instruments. The consequential changes as a result of the recognition of the Iridium SafetyCast service as a recognised mobile satellite service (RMSS) provider in the GMDSS continue to be implemented. The Iridium SafetyCast service became SOLAS carriage compliant from 1 January 2020. As a key outcome of MSC-105 was that the use of all Recognised Mobile Satellite Services (RMSS) is now mandatory. WWNWS agreed that the use of all IMO RMSSs should be mandatory, showing those NAVAREAs already fully implementing the Iridium SafetyCast system, as well as those still in trial and those that have not yet implemented the system. *A Letter from WWNWS and IRCC Chairs will be issued soon for relevant Member States to implement all IMO recognized mobile satellite services.*

22. From the last IHO World Wide Navigation Warning Service Subcommittee (WWNWS) 16th meeting held in Chile in September 2024, the following were the most important topics of discussion:

- Results of the annual NAVAREA self-assessments.
- Measurement of *SPI 3.1.1 Percentage of Coastal States* that are capable to provide maritime safety information (MSI), *now at 89.6% against a 2026 target of 90%* and question over whether the current measure was an accurate reflection of the actual status of MSI provision within Coastal States.
- Update of C-55 and showcased the GIS database that shows status of MSI provision that will be made available on the IHO website in due course.
- MSI CB courses in Oman and Turkey.
- Approval process of the ECDIS Performance standards held at MSC108 and NCSR11.
- Development and implementation of S-124 and inclusion in the GMDSS. The Sub-Committee agreed to work on a roadmap for S-124 implementation to try and get clarity on this.
- Paper submitted to MSC109 on developing guidelines for the use of IP based transfer methods for S-100 products such as S-124.

23. Recommendations:

MACHC members are invited to:

23.1 *Encourage all information providers (NAV and MET Area Coordinators and RCCs) to use the SafetyCast system and progress towards declaring full operational status.*

23.2 *Establish and maintain effective communications with the relevant NAV and MET Area Coordinators to ensure the timely provision of MSI, by following the guidance provided in S-53 – Joint IMO/IHO/WMO Manual on Maritime Safety Information, to ensure the necessary facilities and capabilities are provided and maintained for the gathering and communication of MSI within their area of national responsibility.*

23.3 *Contribute to the reflection on the actual status of MSI provision within Coastal States for a more appropriate definition of SPI 1.3.1, in the light of the revision of the IHO Strategic Plan (see Recommendation 8.4).*

Crowd-Sourced Bathymetry, GEBCO and Seabed2030

24. Following the publication of B-12 Ed. 3.0.0, CSBWG focused on a critical review of the group's operating mandate, identifying ten high level priority work areas and developed a multifaceted work plan. It was noted that in order to draft a submission to the UN Decade, an "IHO CSB Initiative" would first need to be more formally defined. The IHO Secretariat presented a proposal for how to incorporate the development and governance of an IHO CSB Initiative into the CSBWG Work Plan. The IHO CSB Initiative would serve as the central point of standardization, policy and technical guidance – coordinated and administered by the CSBWG, into which those various CSB projects (such as The Great Barrier Reef Project, the joint IHO & Yacht Club of Monaco, etc.) managed outside the CSBWG would feed into and / or draw from. *The Circular Letters (IHO CL 21/2020 and IRCC CL 1/2020)* to request MS to indicate their positions on the provision of CSB data are receiving new positive replies, in addition to the 36 already available at the link https://iho.int/uploads/user/Inter-Regional%20Coordination/CSBWG/MISC/B-12_2024_EN_Acceptance_of_CSB_Data_in_NWJ_v9.0.pdf thanks also to the continuous engagement of the CSB-GEBCO-Seabed 2030 Regional Coordinators with IHO Member States, to advocate for open data access and CSB activities.

25. The Maps the Gaps Symposium held in November 2023 back-to-back to GGC40 meeting in Monaco at Musée Océanographique, celebrated the 120th anniversary of GEBCO, highlighted on seabed knowledge, improved climate modelling, marine biodiversity discovery and monitoring, and offshore wind planning process. With IHO CL 12/2024 (expiration date 14 April 2024 and application process for entry onto the course in 2024 closed with the selection of 6 candidates) – and with an IOC CL within the IOC community as well – the IHO advised Member States that nominations are being sought for the 21st *Course of the IHO-IOC-Nippon Foundation/GEBCO Training Program leading to a Graduate Certificate in Ocean Bathymetry at the University of New Hampshire (UNH), USA*. The 21st course started in late August 2024 and will undertake an intensive 12-month period of lectures, practical laboratory and on-the-water projects, secondments to relevant laboratories and cruises on research or survey ships.

26. The GEBCO Guiding Committee (GGC) prepared the new *GEBCO strategy (2024-2030)* and *GEBCO Governance review report* and both were endorsed by the IRCC at the IRCC16 meeting and by the Executive Council (EC) of IOC-UNESCO at the 57th meeting. At the GGC41 meeting held in Fiji in November 2024, the GEBCO Guiding Committee (GGC) discussed the GEBCO Strategy (2024-2030) and the implementation of the descendent Strategic plan, the GEBCO Governance Review report and the related prioritized recommendations, the necessity to update the GEBCO ToRs and RoP, the GEBCO work plans and funding for 2025 and beyond, the *submission of "Depth" as EOVS (Essential Ocean Variable) to GOOS (Global Observation Ocean System) by the IHO Secretariat*, and the IHO and GEBCO participation at the 2025 global events in favour of the oceans (*Ocean Conference, 4-6 June 2025, Nice – France, Blue Economy Financial Forum - BEFF, 7-8 June 2025, Monaco and UNOC25, 9-13 June, Nice – France*). In order to progress a number of focused areas of work, a series of Task Groups composed of GGC members were created. These small groups will tackle subjects such as:

- Liaison with the IHO Fund Generation PT,
- Liaison with the IOC Sustainable Ocean Planning and Management WG,
- Liaison with the Map the Gaps Symposium organizing committee,
- Develop proposals for future approach to the GEBCO seminars beyond 2025,
- Investigate submitting Depth as an EOVS,
- Develop the Strategy Implementation plan and to coordinate UNOC25,
- Discuss and prepare a Townhall at the One Ocean Science Congress in 2025

27. Nippon Foundation GEBCO-Seabed 2030 project was endorsed as an *Action of UN Decade of Ocean Science for Sustainable Development*. It is a collaborative project to inspire the complete mapping of the world's ocean by 2030, and to compile all bathymetric data into the freely-available GEBCO Ocean Map. Seabed 2030 aspires to empower the world to make policy decisions, use the ocean sustainably, and undertake scientific research that is informed by a detailed understanding of the global ocean floor. The complex network of this project was explained along with the data

ingestion in the system and *mapping coverage that now stands at 26.1% (on 21st June 2024)*, with another small portion of the seabed equal to the area of the European Union mapped in the period between May 2023 and June 2024. Seabed Strategy at regional level aspires to empower the coordination with regional and national stakeholders, by building upon ongoing regional efforts, understanding needs and promoting culture of data and knowledge sharing, by ensuring attribution of contributors, by identifying gaps and by assembling regional and data products.

28. Recommendations:

MACHC members are invited to:

28.1 Consider the impacts of the increasing global societal and United Nations (UN) driven need to complete the picture of the seafloor as well as the potential benefits to individual coastal States.

28.2 Make data freely available for inclusion in the DCDB and the widest possible use, in accordance with IHO Resolution 1/2017.

28.3 Consider to respond to the IHO CL 21/2020 and IRCC CL 1/2020 to indicate their positions on the provision of CSB data.

IHO and United Nations Decade of Oceans for Sustainable Development

29. GOAL 3 confirms the IHO's ambition to help facilitate a paradigm shift in the design and delivery of qualitative and quantitative ocean knowledge to inform solutions that will contribute to the 2030 Agenda for Sustainable Development, whilst the IHO's ambition to be an effective and recognized contributor to the major Ocean related challenges identified by the international community. The IHO Secretariat, for its part, is moving in line with the aforementioned GOAL 3, reinforcing and expanding cooperation with International Organizations and participation in those events and initiatives closely related to the knowledge and the sustainable use of the Ocean. In fact, in accordance with the *Decade Challenge nr.8 – Create a digital representation of the ocean*, IHO is promoting the essential role of bathymetry in underpinning ocean science and related activities.

30. Within the framework of the UN Ocean Decade, significant attention is being paid to the importance of bathymetry, in addition to that range of ocean parameters such as temperature and salinity. The Global Ocean Observing System (GOOS) steering committee has identified a number of Essential Ocean Variables (EOVs), suggesting that depth could be added to such list, with the IHO and IOC as leads under the auspices of the General Bathymetric Charts of the Oceans (GEBCO). In addition, the IHO and the OECD (Organization for Economic Co-operation and Development), with input from a broad range of stakeholders, have been undertaking a joint project to explore and identify the linkages between seafloor mapping, the ocean economy and ocean health and an *IHO-OECD Workshop held in November 2023 in Monaco*. The joint project has also the aim to discuss the benefits of increased investment in ocean mapping and better ocean knowledge. The initiative will bring to a dedicated report from IHO and OECD work on seafloor mapping and the ocean economy, as well as a key step in the *OECD's project to produce an updated Ocean Economy in 2050 report ahead of the 2025 UN Ocean Conference*, in order to directly support the aims and objectives of the Ocean Decade, as well as examine what a sustainable framework for global seabed mapping in the future would require.

31. The IHO Secretariat attended the 2024 Ocean Decade Conference - Building the Ocean Decade roadmap to 2030 for the ocean we want. held in Barcelona in April 2024, co-hosting two satellite-events: one in partnership with the OECD on ocean mapping entitled "*The seabed data we need for the ocean we want*", aimed to look at the importance of advancing our understanding of the ocean and fostering increased investment in related activities, and the second with IMO - World Maritime University (WMU) on "*Empowering Women for the Ocean Decade: Achieving Gender Equality in Ocean Sciences and Policy Making*", looked at how to establish an environment that allows for the equal and fair participation of women in Ocean Sciences. The participation at the Barcelona Conference reaffirmed the IHO's intent to become a relevant stakeholder helping to deliver a

qualitative and quantitative ocean knowledge, and to inform solutions that will contribute to the 2030 Agenda for Sustainable Development.

32. The aim of the IHO engagement in United Nations Ocean Conference 2025 - UNOC25 (and associated events) is to support the delivery of the Strategic Plan by ensuring international oceans policy is conducive, if not supportive of the broadest utilization and implementation of S-100, advocating for investment in primary data gathering and the sharing of existing data holdings, and protecting the domain expertise of hydrographic offices. Initial contacts have been tentatively taken with the Principality of Monaco and the Foundation Prince Albert II for identifying themes to be presented in joint events during the “*Blue Economy and Finance Forum*” (BEFF) that will be hosted in Monaco on 7-8 June 2025 and at UNOC25 (9-13 June 2025 in Nice, France). An internal project team was established to set out the IHO Secretariat’s aims, objectives, specific activities and level of ambition for participation in the 3rd UN Ocean Conference in June 2025 (UNOC25), and to identify next steps. In order to provide an opportunity for the Chairs of the 15 Regional Hydrographic Commissions and subordinate bodies of the IRCC to participate in the aforementioned IHO-sponsored side-events and potentially participate as delegates of the respective national delegations participating in UNOC2025, the IHO Secretariat proposed – and it was approved by the IRCC at the IRCC16 meeting – that the *CBSC23 and IRCC17 meetings will be held in Monaco at the Secretariat’s headquarters back to back with the noted UN events in the period 28 May - 6 June 2025.*

33. **Recommendation:** MACHC *is invited to take note of the engagement of the IHO Secretariat in the UN initiative and the items for further consideration.*

Technical Program and S-100 Implementation

34. As presented in CL 43/2023, the Hydrographic Services and Standards Committee, S-100 Working Group put forth a 2024 timeline for advancing Phase 1 / Route Monitoring product specifications. In order to meet IHO and IMO expectations for 2024, the HSSC adhered to the following schedule:

TASK	IHO CL issue date	MS Response due
S-100 Edition 5.2.0	IHO CL 18/2024 (Jan 2024)	IHO CL 27/2024Rev1 (Jun 2024)
S-100 Phase 1 Endorsement	IHO CL 39/2024 (Oct 2024)	December 2024

With IHO CL 39/2024, IHO member States were invited to approve the *Operational Editions of S-100 based product specifications S-101, S-102, S-104, S-111 and S-129 (Phase 1 / Route Monitoring) no later than 13 December 2024*, already endorsed by HSSC with HSSC CL 02/2024. The operational editions of the remaining two S-100 based product specifications belonging to Phase 1 / Route Monitoring (S-124 and S-128) will be brought to the approval of the IHO Member States at the beginning of 2025.

35. With the recent adoption of the revised Resolution MSC.530(106) on Performance Standards for ECDIS by the IMO at their 108th Session of the IMO Maritime Safety Committee (MSC108) in May 2024, it was noted that the IHO is working hard to progress the implementation of S-100 based products by aiming to complete the operational versions of Phase 1 standards, including Electronic Navigational Charts, Bathymetry, Water Levels, Surface Currents, and Under Keel Clearance Management by the end of 2024. As S-100 compatible ECDIS enters service, starting in 2026, *Hydrographic Offices will work to produce S-100 products*, anticipating S-100 systems to become increasingly beneficial over time. Future progression on the implementation of the S-100 Roadmap will be regularly reported by IHO to IMO (NCSR). From 2025 onwards, these reports will be based on respective IHO Member States and Regional Hydrographic Commissions reports and will provide the geographic coverage of S-101, other S-1xx products, ENDS schemes, and production plans per Charting Regions by digital means. *INToGIS III remains the one-stop-shop platform to support the RHCs and give a worldwide vision of the S-100 plans and production.* The Republic of Korea confirmed its intention to pursue this development.

36. In addition to that, the continued maintenance of the printed nautical chart has the full attention of IHO, despite the need for this format of nautical charts will continue to decrease. On this regard, the IHO recognizes that printed nautical charts will be needed for the foreseeable future by certain ships. For this reason, the IHO will continue to support paper chart standards and coordination efforts around the world.

Worldwide ENC Database (WEND)

37. WENDWG highlighted the importance of defining a S-100 capabilities-based approach at regional level and for the WENDWG to provide subsequent guidelines through the IRCC to the S-100 Regional Coordinators for a timely and harmonized implementation of the S-100 Roadmap. 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 (Electronic Navigation Data Services) in the S-100 eco-system. At IRCC16, WENDWG was tasked to invite the RHCs representatives to develop their schedule to meet the 2026 IMO target (S-100 ECDIS) and share their own roadmap at the next WENDWG meeting to be held in February 2025. WENDWG also established an *ad-hoc S-11 - Part C drafting team to develop a proposed Edition 1.0.0 of S-11 Part C "Guidelines for the Coordination and Management of the Development of S-100 Electronic Navigational Data Services (other than S-101 ENCs)"* to submit for approval for testing in 2025 according to IHO Resolution 2/2007 as amended. Some critical overlaps at Usage Band 5 (Harbour) and Usage Band 2 in some RHCs were presented and the RHCs were encouraged to ask their members to engage bilaterally to resolve overlaps.

38. Recommendations:

38.1 MACHC Members are kindly requested to respond to the IHO CL 39/2024.

38.2 MACHC is kindly requested to implement the WEND recommendations and to develop a proper schedule to meet the 2026 IMO target (S-100 ECDIS) and share the own roadmap at the next WENDWG meeting via the regional representative to the WENDWG.

38.3 MACHC is invited to establish the position of S-100 regional coordinator.

38.4 MACHC Members are encouraged to liaise bilaterally to solve overlaps in the Region.

IHO GIS and Databases

39. Work has *continued* on the IHO internal systems. Especially, two components are to be mentioned:

- IHO Country Information system, and
- IHO Online Form system.

40. The IHO Country Information system has been progressively upgraded to include administrative information and facilitate the maintenance of the IHO publications such as Yearbook (P-5) and Status of Hydrographic Surveying and Charting Worldwide (C-55) posted on the IHO website. The IHO Online Form system has been used since March 2019 and has been widely accepted by the Member States for the Circular Letter responses and the updating of P-5 and C-55 (IHO CL20/2019 and CL03/2020 refers). Countries in the MACHC Region are invited to review their entry in the publications on an annual basis and provide the IHO Secretariat with the appropriate updates through the IHO Online Form system. An Esri-based GIS solution has been implemented for the efficient visualization of geospatial data stored in the Country Information System. This Cloud-based service has enabled access to various layers and functions through the IHO website such as the IHO ENC Catalogue. Currently, six WebGIS applications have been available to the public in this new environment (ENC Coverage Catalogue, IHO Web Catalogue of INT Charts and ENC Schemes, IHO Member States Map, FIG-IHO-ICA IBSC Recognized Programmes and Schemes, GEOMAC project and the Map

regarding National Marine Spatial Data Information (MSDI) Portals). The status of the data in the IHO Country Information Database concerning the MACHC Member States, including those provided for C-55 is as follows:

Country	P-5 –Yearbook Last update received	C-55 Last update received
Bahamas	October 2016	December 2023
Brazil	June 2024	June 2024
Colombia	July 2024	October 2024
Cuba	August 2020	December 2016
Dominican Republic	January 2021	January 2023
France	November 2024	November 2023
Guatemala	June 2023	November 2024
Guyana	November 2021	December 2023
Jamaica	May 2023	December 2023
Mexico	October 2021	November 2012
Netherlands	January 2023	October 2022
Suriname	September 2019	December 2023
Trinidad and Tobago	September 2019	December 2023
United Kingdom	August 2024	December 2023
United States	June 2024	December 2018
Venezuela	October 2023	November 2021
Antigua and Barbuda	November 2012	November 2023
Barbados	November 2019	December 2023
Belize	-	December 2023
Costa Rica	March 2020	-
El Salvador	April 2017	December 2016
Grenada	November 2012	December 2023
Haiti	June 2017	December 2016
Honduras	February 2014	November 2005
Nicaragua	April 2017	-
Panama	September 2017	December 2023
Saint Kitts and Nevis	December 2020	December 2023
Saint Lucia	-	December 2023
Saint Vincent and the Grenadines	October 2014	December 2023

41. **Recommendation.** *Countries in the MACHC Region are invited to review their entry in the IHO Yearbook and C-55 and to provide the IHO Secretariat with the appropriate updates or to report no change (CL 20/2019 refers).*

IHO Outreach

42. The outreach of IHO themes is more than ever based on digital provisions. Social media such as LinkedIn, Facebook and X (ex-Twitter) have become relevant communication channels in parallel

to the IHO website. The IHO website had a total of 988,000 page views in the first 10 months of 2024. The LinkedIn page grew to 10,500 followers by 15 November 2024 and reached total post impressions of 168,329 in the first 10 months of 2024. The website of the International Hydrographic Review underwent a full re-launch providing now substantially extended functionality. The IHO Secretariat has increased its presence on social media through articles and news about its working groups, committees and subcommittees, as well as the participation in regional and global initiatives that refer to Hydrography, especially in the framework of the UN Ocean Decade and in view of the UN Ocean Conference in 2025, to raise awareness about the IHO's work and the importance of hydrography to a broader audience. The Secretariat has continued communicating on social media and participated in regional and global initiatives for the ocean.

43. The IHO Secretariat is implementing a *new IHO Portal* to be used for the IHO events and respective registration. A transition phase from the website to the portal was defined from October 2024 to the end of March 2025. Detailed arrangements to set preferences on which one of the two to be used during the transition phase, will be coordinated with the Chairs of the IHO Working Groups and Project teams as well as the Regional Hydrographic Commissions. After 31 March 2025, all event preparations should exclusively use the new IHO Portal (IHO CL 44/2024 refers).

World Hydrography Day (WHD)

44. As announced with IHO CL 01/2024, the theme for WHD 2024 is as follows:

“Hydrographic Information - Enhancing safety, efficiency and sustainability in marine activities”

This theme is proposed to highlight that - as per Decision 8 of the 3rd Session of the IHO Assembly in May 2023 - Goal Number 1 of the Strategic Plan and its targets shall have the highest priority in the implementation of the 2024–2026 Work Programme, which means priority in application of material and human resources, liaison with public sector and industry partners, promotion of concerted regional approaches including increased collaboration with the RENCs, and support of test beds delivering best practice examples for the production, maintenance and distribution of all prioritized S100 derivatives. The Secretariat would welcome any comments and suggestions aimed at improving the impact and the organization of annual WHD celebrations. In support of WHD 2024, the IHO Secretariat will feed the IHO Facebook page, X account, LinkedIn account and YouTube channel. The IHO Secretariat will also organize a dedicated page on the IHO website, where papers and other materials relevant to the celebration will be posted. Member States are invited to forward to the Secretariat any materials that they may create in support of their national WHD 2024 celebrations for posting on any of these platforms.

45. As announced with IHO CL 43/2024, at the 8th IHO Council meeting in Monaco, the IHO Secretary-General proposed the following theme for WHD 2025:

“Seabed Mapping – Enabling Ocean Action”

This proposed theme aims to highlight the interrelation of IHO Strategic Plan Goal 3, “Participating actively in international initiatives related to the knowledge and the sustainable use of the Ocean”, and the tenants of Goal 2, “Increasing the use of hydrographic data for the benefit of society”, also highlighting the importance of ocean mapping as the key to enable ocean action, in full alignment with the theme of the next United Nations Ocean Conference “*Accelerating action and mobilizing all actors to conserve and sustainably use the ocean*” taking place in Nice, France in 2025. The proposed motto reaffirms the commitment of the international hydrographic community as a relevant partner in the global aspirations for the conservation and sustainable use of the oceans, sea and marine resources for sustainable development. A societal benefit of seabed mapping is the baseline information in support of nautical charting as the traditional asset of IHO standardization in sea survey and sea cartography, but it also bolsters the blue economy through sustainable marine energy, supporting fisheries and coastal tourism, protecting biodiversity, or monitoring ocean changes, reliable data is the foundation for informed decision-making across industries and environmental initiatives alike.

International Hydrographic Review (IHR)

46. Dr Patrick Westfield from Germany was confirmed for additional 2 years as IHR Editor until 2026. The Review is focused in facilitating interdisciplinary knowledge exchange in applied science, as hydrography encompasses fields such as geophysics, oceanography, geodesy, acoustics, cartography, remote sensing and others. The recent IHR Vol.30 Ed. May 2024 covers some of these different perspectives and includes articles on oceanography, geodesy, geology and of course hydrography, with contributions on crowdsourcing water depth data.

47. Papers for consideration for publication in the IHR should be forwarded directly to the editor (ihreview@iho.int, copy to ihr.editor@iho.int.com). The deadlines are:

- end of January for the May Edition
- end of July for the November Edition.

48. **Recommendations:**

48.1 MACHC Members are invited to take note of the content of the IHO CL 44/2024 and the links to the guidance document of the new IHO Portal.

48.2 MACHC Members are invited to respond to the IHO CL 43/2024 with reference to the proposal of the 2025 WHD.

48.3 MACHC Members are encourage to contribute to the IHR and propose articles/notes for the publication on the Review.

49. **Actions Requested of MACHC:**

- a) Note this report
- b) Consider the recommendations proposed in this report
- c) Take any other actions as considered appropriate.