

NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION

21-23 MAY 2024, CHIANG MAI, THAILAND

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 North Indian Ocean Hydrographic Commission.

Commission Specific Information, Opportunities, Events, and Recommendations

Technical Program and S-100 Implementation

1. 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 product specifications. In order to meet IHO and IMO expectations for 2024, the HSSC intends to adhere to the following schedule:

Task	IHO CL issue date	MS Response Due
<i>S-100 Edition 5.2.0</i>	<i>March 2024</i>	<i>May 2024</i>
<i>S-100 Phase 1 Endorsement</i>	<i>October 2024</i>	<i>December 2024</i>

2. The NIOHC is kindly requested to monitor IHO Circular Letter distribution and vote accordingly at their earliest convenience.

Opportunities for Training and Capacity Building

3. Empowering Women in Hydrography - A webpage (<https://iho.int/en/basic-cb-sc-ewh>) has been set up for this project.

3.1 NOAA (USA) announced that **3 opportunities** will be available in 2024 (CL09/2024). Selected candidates will spend a cruise (approximately two to three weeks underway) aboard a NOAA hydrographic ship gaining hands-on experience. Ideally candidates will be early to mid-level hydrographers with a strong background and continued interest in hydrography. **Application closed 15 March 2024.**

3.2 Shom (France) offered two opportunities (French proficiency required) in 2024 associated with the EWH project to participate in the hydrographic training programme at Shom in partnership with the French speaking Hydrographic Association (AFHy) to obtain the Hydro3 certification and offered three opportunities to participate in hydrographic and oceanographic survey activities aboard two Shom (France) research vessels. (CLs 40 and 41/2023) **Application closed 30 January 2024.**

4. Two opportunities for the Master of Science Programme in Hydrographic Science at the University of Southern Mississippi (USA), sponsored by the Republic of Korea 2024/2025, was announced in IHO CL 27/2023. **Application closed 17 January 2024.**

5. 10 opportunities for the IHO - Republic of Korea Category "B" Hydrographic Survey Programme, Republic of Korea, Busan, was announced in IHO CL 44/2023. **Application closed 19 February 2024.**

6. Seven opportunities for the IHO - Nippon Foundation Geospatial Marine Analysis and Cartography (GEOMAC) Project, UKHO, Taunton, UK. **Application closed March 4.** (CL03/2024)

7. CL12/2024 informs Member States on the opportunity to present nominations 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 **Application closed April 15, 2024** (CL 12/2024).

Upcoming Events

8. Second IHO-IALA S-100 Workshop – September 9-13, Annapolis, Maryland, USA
9. GEBCO Week - In 2024, the Annual GEBCO Week will be held in Nadi, Fiji, in partnership with the Fiji Navy Hydrographic Office, SWPHC and the Nippon Foundation-GEBCO Seabed 2030 Project South West Pacific Regional Data Archive Centre (Run by NIWA and Supported by LINZ). The week will consist of a regional seminar and workshop investigating opportunities to unlock access to currently embargoed data holdings, as well as exploring opportunities for primary data gathering. It will also include the GEBCO Guiding Committee meeting which is open access to any interest parties.

Status of IHO Membership in the NIOHC

10. IHO membership now stands at 99 with two suspended. Current United Nations Member States are not required to seek IHO Member State approval in order to join the IHO. The IHO Secretariat, in cooperation with the Department of External Relations of the Government of Monaco, stands ready to assist non-IHO Member States with the IHO application process for membership and is willing to pay High Level Visits to those States in the region which are not yet IHO Member States. The IHO respectfully invites non-IHO Member States to accede to the IHO Convention.

The Commission is invited to review its information in P-5 and C-55 through the IHO Online Form system. The status of the data in the IHO Country Information Database concerning the Commission’s Member States is as follows:

NIOHC

country/area name	P-5	C-55
Bangladesh	May 2023	March 2019
Egypt	April 2023	July 2021
India	February 2024	February 2019
Indonesia	March 2024	March 2019
Myanmar	July 2022	March 2019
Pakistan	October 2023	February 2023
Saudi Arabia	July 2022	June 2019
Sri Lanka	August 2023	June 2023
Thailand	January 2024	March 2021
United Kingdom	July 2023	August 2022

Recommendations and Invitations for the Commission’s Consideration

- a. Committees are requested to respond to IHO CLs in a timely manner, particularly during Phase 1 implementation of S-100;
- b. Support the continuation of the EWH project through financial and / or in-kind support and to provide proposals via the specific webpage (<https://iho.int/en/basic-cbssc-ewh>);
- c. Provide the IRCC Chair with an update regarding the measurement of those SPI of regional interest allocated to IRCC;
- d. Conduct a survey within Commission on hosting and attending meetings in the four different modalities (in-person, in-person with live streaming, hybrid, or full VTC);

- e. *Provide contributions to the IHO e-Learning Center at KHOA;*
- f. *Ensure the timely provision of MSI through NAV and MET Area Coordinators;*
- g. *Make data freely available for inclusion in the DCDB and the widest possible use, in accordance with IHO Resolution 1/2017;*
- h. *Provide contributions to the IHO e-Learning Center at KHOA;*
- i. *Review entries in the IHO Yearbook and C-55 to provide the IHO Secretariat with the appropriate updates or to report no change (CL 20/2019);*
- j. *iaw @WENDWG14/23, acknowledge that the S-100 strategic approach to support and attract end-users for the IHO is not to complete the full S-101 coverage first, then consider the other products... but to engage the IHO into the development of a new distribution model, including cybersecurity and integrity measures and ensuring that end-users can easily access and get all S-100 Phase I products and ENDS in confidence along a given route;*
- k. *based on the above, that S-1xx Coordinators take appropriate actions (Work Plans for individual Phase I Products ENDS), by anticipation of the availability of Ed.2.0.0 Product Specs and consider testing, then using the forthcoming INTtoGIS III system for planning S-100 Products & ENDS Coverage;*
- l. *support the S-100 communication strategy towards end-users, manufacturers, IMO, addressing readiness and expected geographic coverage of S-100 based products and data services in the following years, from 2026 onwards (still to be developed) (WENDWG13/08 and WENDWG14/20 refer);*
- m. *Initiate the preparation of inputs for the review of the IHO Strategic Plan (C7/37 refers);*
- n. *Consider increase active participation of some IHO Members (see inclusivity) in the activities of the IHO in general; and*
- o. *Please note this report.*

**** See Annex A for additional information and subsequent recommendations from around the IHO. The recommendations presented above are for the primary consideration of the NIOHC.**

IHO Information

Decisions of the 3rd Session of the IHO Assembly

11. Decision 8: The Assembly agreed on the continuation of conduct of the annual Work Programmes on the basis of the Strategic Plan in place for 2021 – 2026 and directed the Council accordingly. Approved that Goal 1 of the IHO Strategic Plan and its targets shall have the highest priority in the implementation of the 2024–2026 Work Programme; directed IRCC to provide guidance to the MSDI Working Group on the implementation of Goal 2/Target 2.1 through supporting national and regional MSDIWG efforts via RHCs and the continued provision of global thematic layers by means of the existing IHO GIS infrastructure (trusted source, standardized, interoperable); tasked the Secretariat, assisted by the HSSC and IRCC chairs, to continue to measure the effectiveness and the efficiency of the three Work Programmes implementation by means of the Strategic Performance Indicators (SPI) as endorsed by the Council; and tasked the Council with the development of the revised Strategic Plan to be put in place for 2027 – 2032 in compliance with the Planning Cycle and to submit the result for adoption by A-4 in 2026.
12. Decision 9: The Assembly directed the IHO Secretariat to implement the gender-inclusive language in M-1 as a first step and invited all IHO Committees, Sub-Committees, Working Groups, Project Teams and Regional Hydrographic Commissions to review their TORs and ROPs in application of the new IHO Resolution.
13. Decision 13: The Assembly took note and approved the fundamental strategic change introduced by the S-100 framework and approved the Dual Fuel Concept for S-100 ECDIS.
14. Decision 14: The Assembly recognized the need to establish the S-100 Infra Center and approved the foundation of a new Project Team under HSSC with a three-year work plan including the establishment of the S-100 Infra Center and to prepare for the actual implementation period with consideration of the possible location of the Center; and tasked Council to report to the 4th IHO Assembly the progress of its three year operation including the establishment of the S-100 Infra Center.
15. Decision 19: The Assembly approved the proposed IHO Resolution on the recognition of the Southern Ocean; took note of the consequences on the limits of some global sea areas as a result of recognition of the Southern Ocean; and endorsed the fact that this new Resolution is without prejudice to or limitation of the views of the IHO, any other international body or any IHO.
16. Decision 20: The Assembly recognized the important global maritime issues facing the hydrographic community worldwide and that addressing these issues will require expanded global hydrographic capacity; approved the proposal to establish an ad hoc Project Team under IRCC to explore the possible establishment of reliable alternative funding for activities including capacity building and GEBCO; and authorized Council via IRCC to review progress reports from the Project Team at least annually and provide guidance to the Project Team in preparation to report out to 4th Assembly (A4).
17. Decision 27: The Assembly approved the increase of the value of the Member States contribution share by 3% to 4,145.05 Euro (~120 Euro per share) in one step taking effect in 2024.

Outcomes of the 7th Meeting of the IHO Council

18. In accordance with the decisions of A-3, the Council endorsed the principle that additional funding resources (Decision A3/20 and IRCC15 Decision 41 refer) should be considered for setting up a sustainable technical and administrative infrastructure around S-100 including standards development to meet the S-100 timeline, and in parallel of the establishment of the S-100 Infrastructure Centre, the Council tasked the HSSC to identify the current or emerging components

that are critical in the implementation of the S-100 Roadmap that could candidate for being funded by the IHO. The IRCC Chair reported that the WENDWG considered the WEND-100 Principles and S-1xx Implementation Guidelines to be in “maintenance mode” and included them as part of the regular agenda to consider updates as S-100 Products and Services mature, whilst on the regional S-100 coordinator’s role, some RHCs requested more guidance on what the role entails. An amendment to include Section 300 in S-11 Part A to describe the Coordinator responsibilities was considered. Some progress was made on measuring the SPI 1.3.1 via a first run of the WEND IGIF Products and Services Matrix that has been completed. IRCC tasked WENDWG to liaise with HSSC on how to mirror the HSSC ISO Cell on S-101 with the following scope: RHC S-101 production/coordination/distribution in the near future.

19. While noting the existing IHO Resolution 2/2014 as amended – Prince Albert the 1st Medal for Hydrography, the Council endorsed the proposal for an annual Champion of Hydrography Award and tasked HSSC and IRCC Chairs supported by IHO Secretariat, to prepare a proposed IHO Resolution for the Champion of Hydrography Award, to be awarded on an annual basis, followed by an IHO CL seeking the approval of IHO Member States on the proposed IHO Resolution.

20. The Council noted the outcome of a scoping team and endorsed the recommendations from the IRCC to establish a *Project Team on Fund Generation of IHO’ Project Initiatives* under the IRCC. IHO Secretariat to issue a CL on the establishment of the IHO FG PT, as soon as the draft TORs and ROPs are finalized by correspondence within the IRCC.

21. The Council agreed to continue with the EWH project led by the CBSC supported by remaining funds and future financial and / or in-kind support. Then, the Council supported by IRCC will develop a proposal on the future framework for an IHO social Programme (incl. Gender Balance in Hydrography) to be submitted to A-4.

22. The Council noted the dashboard (target 2026, WP2 and WP3 SPIs value as of 31 Dec. 2022) allocated to the IHO Secretariat, HSSC and IRCC (IHO Annual Report 2022, Annex B refer) and its update for WP1 as of 1 Oct 2023. The Council welcomed the offer from the Council Vice-Chair to lead a correspondence group consisting of BR, DE, DK, FR, GB, HR, JP, NO, NZ, SE and US on the ways and means to prepare the next IHO Strategic Plan 2027-2032.

23. The Council agreed to prepare an IHO Resolution on Guidelines for *Making IHO Events More Inclusive*, endorsed the principle of considering an initial proposal for a IHO Resolution Guidelines for Making IHO Events More Inclusive to be prepared by an ad hoc drafting group (AU, CL, FJ, NZ, SG, GB, US...), and then tasked the ad hoc drafting group (respectively IRCC) to conduct a survey on behalf of the Council to assess the feasibility, preference and willingness of MS, WGs, Committees Chairs... (respectively RHCs), to host and attend meeting in the four different modalities (in-person, in-person with live streaming, hybrid, or full VTC).

24. The Council tasked the IHO Secretariat to establish liaison with relevant data providers of MPAs and tasked the IRCC through the MSDIWG to establish a pilot project for the High Sea and MPAs adopted by IMO, to demonstrate the benefits of S-122 for non-navigation purposes.

25. Recommendations:

25.1 *The Commission is invited to create the role of regional S-100 coordinator in accordance with the WEND-100 Principles and S-1xx Implementation Guidelines.*

25.2 *The Commission Chair is invited to evaluate the opportunity to participate with a representative from THE COMMISSION to the Project Team on Fund Generation of IHO’ Project Initiatives under the IRCC.*

25.3 *The Commission Members are encouraged to support the continuation of the EWH project through financial and / or in-kind support.*

25.4 *The Commission is requested to provide the IRCC Chair with an update regarding the measurement of those SPI of regional interest allocated to IRCC.*

25.5 *The Commission Chair is invited to conduct a survey within the Commission on hosting and attending meetings in the four different modalities (in-person, in-person with live streaming, hybrid, or full VTC).*

25.6 *The Commission is invited to review the statutes implementing the gender-inclusive language as mentioned in Decision 9b of the 3rd Session of the IHO Assembly.*

Technical Program

26. 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 product specifications. In order to meet IHO and IMO expectations for 2024, the HSSC intends to adhere to the following schedule:

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27. Member States, in particular those not directly involved in the activities of Working Groups and Committees, are kindly reminded that, unless Member State Circular Letter votes are issued in accordance with the timeline presented, the goals outlined in the Roadmap for the S-100 Implementation Decade will not be met. We must follow the deadlines presented in this schedule in order to meet the IMO requirements with regard to the implementation of S-100 ECDIS (Decisions A3/07, A3/13 and IHO Resolution 1/2023 – S-100 Implementation refer)

28. Recommendation:

28.1 Committees are requested to respond to IHO CLs in a timely manner, particularly during Phase 1 implementation of S-100.

Capacity Building Programme

29. CBSC 21 decided that the funded activities which were not executed in the 2023 CBWP could be carried over to the 2024 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 will return to the pre-COVID practice of not carrying over incomplete activities from year-to-year.

30. The IHO expects increased pressure on CB finances in 2024 with the expected reduction of non-earmarked funds, so it will be increasingly important to share resources across projects along with investing in remote activities, including across regions. CBSC21 evaluated and ranked submissions for 2024 and has posted the results on the Capacity Building and Technical Cooperation webpage on the IHO website. The focus is on the S-100 Implementation Roadmap and important support will be received from both RENCs. NIOHC has the following activities planned and funded by the CB Funds for 2024:

- P-06 Seminar on Raising Awareness of Hydrography
- P-08 MSI (training on establishment of MSI structure and basic MSI procedure) - Joint activity with RSACH
- P-28 Seminar on Raising Awareness of Hydrography (former 2023-P5)

31. In 2024 were selected two candidates for 2024/2023 Master of Science Programme in Hydrographic Science at the University of Southern Mississippi (USA) (CL05/2024) and 10 candidates for the 2024 Cat B Hydrographic Survey Programme (CL 15/2024), both sponsored by the Republic of Korea. Seven candidates were also selected to participate in the 16th GEOMAC course in Cartography Cat B (see IHO CL 17/2024) sponsored by Nippon Foundation.

32. 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).

Empowering Women in Hydrography (EWH)

33. CANADA and IHO signed an EWH Agreement available at <https://iho.int/en/mou-agreements>. The Agreement secures funding for the period 2021-2024, and describes a series of activities and initiatives which will enable more women to participate equitably in the field of hydrography. The project includes outreach, education, internships, at-sea experiences, on-the-job training activities and a mentoring programme. A webpage (<https://iho.int/en/basic-cb-sc-ewh>) has been set up under the Capacity Building Sub-Committee (CBSC) for this project. The third year of EWH has demonstrated success in several areas: a dedicated event prior to the start of A-3, with sponsored participants from around the world, three candidates selected for the 2023 at-sea experience onboard NOAA ships, one candidate selected for a knowledgebase secondment at IC-ENC, a new mentorship programme, continued interviews of women engaged in hydrography and related sciences, and the presence of an EWH Assistant at the IHO Secretariat. IHO CLs 40 and 41/2023 call for applications to hydrographic training and hydrographic and oceanographic surveys provided by SHOM (France) and IHO CL 09/2024 call for three opportunities for an at-sea experience /advanced training on NOAA hydrographic survey vessels.

IHO e-learning Center

34. The IHO e-learning center, established by KHOA, is accessible at <https://elearning.iho.int>, or via 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 in line with the indications provided in the guidelines.

35. The first meeting of the Steering Committee was held on 25 September 2023 by VTC. The need to identify or find a way to fulfil the role of the General Manager (GM) was recognised as a priority. The Centre will be implemented in phases with phase 1 focusing on a catalogue of existing eLearning Material. In future phases the appropriate Working Groups and Hydrographic Offices should be approached to review and support material submitted.

Number of Participants Selected from Region	
EWH – NOAA Ship Experience (2023)	0
Shom Hydrographic Training and hydrographic and oceanographic surveys	0
ROK Master of Science USM	0
IHO-IOC-Nippon Foundation/GEBCO Graduate Cert UNH	0
ROK Category “B” Hydrographic Survey	1
NF 16 th GEOMAC course in Cartography Cat B	1

36. Recommendations:

- 36.1 Commission members are invited to continue follow and evaluate the possibility to contribute to the CB Work Programme, with consideration for implementing an inter-regional approach.
- 36.2 Commission members are invited to participate in EWH and to provide proposals via the specific webpage (<https://iho.int/en/basic-cbssc-ewh>) along with disseminating the call for Mentors and Mentees of the EWH Mentorship Programme (IHO CL 46/2022).
- 36.3 Commission members are invited to provide contributions of the IHO e-Learning Center at KHOA.

Maritime Safety Information Services

37. Work by the International Maritime Organization (IMO) on the modernization of the Communications and Global Maritime Distress and Safety System (GMDSS) continues with the on-going 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 MSC105 was that the use of all Recognised Mobile Satellite Services (RMSS) is now mandatory. The IMO made it clear that if any member state was experiencing issues with the implementation of SafetyCast, regardless of the nature of the issue, they should contact the IMO to discuss what support could be provided.

38. WWNWS provided feedback on IHO SPI 3.1.1 (target 90%) assigned to WWNWS. Overall, for 2023, WWNWS assessed Coastal States MSI capacity to be 87%. The SPI is measured yearly, based on the navigational warnings issued and on the MSI support provided by NAVAREAs. WWNWS is working in cooperation with CBSC on a C-55 GIS project, considering the status of MSI among Member States to meet the MSI SPI. The presented demo on the C-55 GIS project will be evaluated to be incorporated into the INTtoGIS III. On Iridium SafetyCast Implementation, 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. Two courses on MSI were conducted in 2022.

39. S-124, Edition 1.0.0 is ready for submission for approval. NCSR10 approved the joint IMO/IHO/WMO Manual on Maritime Safety Information. IRCC recommended RHCs to encourage relevant Member States to report to the IMO Secretariat and the Chair of the EGC Coordinating Panel on the progress and status of implementation of newly recognized mobile satellite services by MSI providers. It must be noted that MSI providers, should they implement Iridium SafetyCast services, are compelled to bear the burden of all additional costs, as a consequence of the approval by IMO Member States of the Iridium SafetyCast as an RMSS. Good progress has been made with implementation with a number of NAVAREAs due to become operational in 2022-2023, with more entering the formal testing phase. However, there is still a number of NAVAREAs that need to commit to implementation before the service can be declared fully operational. This causes concerns for Coastal States.

40. Recommendations:

The Commission Chair is requested to encourage all Commission members to:

- 40.1 *Establish and maintain effective communications with the relevant NAV and MET Area Coordinators to ensure the timely provision of MSI.*
- 40.2 *Use and follow 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.*
- 40.3 *Implement the Iridium SafetyCast services, as a consequence of the approval by IMO Member States of the Iridium SafetyCast as an RMSS.*

Crowd-Sourced Bathymetry, GEBCO and Seabed2030

41. Following the publication of B-12 Ed 3.0.0, CSBWG focused on a critical review of the group's operating mandate, as set out in the ToRs and RoPs. The new version of CSBWG ToR was approved by IRCC. CSB has reached a level of maturity and is picking up momentum rapidly, assisting in a change in the way many Member States view CSB. CSB is working on designing a work plan and determining their direction forward, reviewing the evidence, working on the strategy and agreeing with the outcome. An important point is to investigate and promote ways to increase data contributions and incentives to take active part in the CSB initiative, also investigating ways to foster and facilitate data providers, increase data contributors and identify incentives on how and why mariners should become involved.
42. 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 35 already available at the link: https://iho.int/uploads/user/Inter-Regional%20Coordination/CSBWG/MISC/B-12_2023_EN_Acceptance_of_CSB_Data_in_NWJ_v7.0.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. There continues to be concern over the apparent lack of dedicated resources available within national HOs to process data available via DCDB. The importance of liaison with other IHO bodies, as well as appropriate engagement with industry to progress the work items, continues to be a key enabler for the project.
43. An IRCC CSB Workshop was held on the 26 April 2024, with the aim of reviewing the current status of the IHO CSB initiative, dispel some of the misconceptions surrounding the legal framework for CSB, provide a forum for member states to ask questions regarding the adoption of CSB as a tool for filling data gaps, and to received feedback on the current approach of the CSBWG. The workshop was highly successful with over 100 participants in attendance.
44. A CSB Pointstore Dashboard is under development at the DCDB. The DCDB will continue to support the GEBCO Gazetteer and KHOA Beta-Gazetteer interoperation, developing a modern user interface. DCDB reported on SPIs 3.2.1 and 3.2.2 in a way that allows better understanding on the evolution of the amount of data and number of contributors to the DCDB which are not Hydrographic Offices. For future reports, the DCDB will cooperate with RHCs to produce annual regional breakdowns of data holdings as part of SPI reporting.
45. The GEBCO Guiding Committee (GGC) has been working on the celebration of GEBCO's 120th year of ocean discovery, a new GEBCO strategy, a GEBCO Code of Conduct, a GEBCO Governance review, including the GEBCO organogram with all the relations codified and the next steps for the approval of the new GEBCO governance. A new GEBCO SubCommittee on Education and Training was established. Celebrations of GEBCO 120th anniversary were held in Monaco during the 3rd Session of the IHO Assembly in May 2023, in Paris during the IOC General Assembly in June 2023, and at the *Maps the Gaps Symposium* held in Monaco in November 2023.
46. With IHO CL 05/2023 – and with an IOC CL within the IOC community as well – the IHO advised Member States that nominations were being sought for the 20th 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 20th course began in late August 2023 and students 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. The course represents a strong investment in future generations of ocean scientists and hydrographers, In order to liaise with this successful existing program and to identify and connect with other ocean mapping programs, GGC38 decided to establish a new Sub-Committee on Education and Training (SCET), now operational.
47. Nippon Foundation GEBCO-Seabed 2030 project was endorsed as an Action of UN Decade of Ocean Science for Sustainable Development. The complex network of this project was explained along with the data ingestion in the system and mapping coverage that now stands at 24.9%, as announced by H.S.H. Albert II - Prince sovereign of the Principality of Monaco at the opening ceremony of the 3rd Session of the IHO Assembly on 2nd May 2023. The project is focused on mapping

the gaps with three different initiatives: the Ocean Frontier Mapping, Crowd Sourced Bathymetry and Technology Innovation. It is necessary to promote the need to map the entire seabed and to encourage organizations to make their data available.

48. Nippon Foundation GEBCO-Seabed 2030 project signed many Memorandum of Understanding in recognition of the organizations' work to advance the understanding of ocean bathymetry, and to complement the goals of the United Nations Decade of Ocean Science for Sustainable Development. Data contributions increased from the previous year and, in addition to the regional programmes in support of IHO's Crowdsourced Bathymetry (CSB) initiative, it is seeing increasing interest across a diverse community of owners and operators of super yachts and small vessels who wish to help gather new depth information and support the harvesting of this bathymetry. New Trusted Nodes were established with the invaluable assistance of DCDB and CSB Working Group.

49. New global survey calls for greater coordination of seabed mapping activities were launched in London, 15 October 2021 to give a major boost to efforts to map the entire seafloor by the end of the decade. The survey aimed to develop a more consolidated global view of seabed mapping needs in order to move towards an agreed list of strategically important priority areas for further action. With IHO CL 11/2023, the IHO encouraged Member States to participate at the online survey to find out more about the status and potential of mapping the ocean floor, prepared by NLA International working on behalf of Seabed 2030. The survey is intended to reflect the views across both hydrographic and oceanographic communities that discharge responsibilities for seabed mapping in EEZs and ocean basins beyond national jurisdiction. In addition, it seeks the views from the wider global community of national government agencies involved in seabed mapping data acquisition, production and use. Finally, the results of the survey could help guide efforts to review and adapt IHO Publication C-55 Status of Hydrographic Surveying and Nautical Charting Worldwide.

50. **Recommendations:**

Commission members are invited to:

49.1 *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.*

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

49.3 *Consider responding to the IHO CL 05/2023 and 11/2023.*

IHO and United Nations Decade of Oceans for Sustainable Development

51. 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.

52. 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. The latest step in this process was a joint IHO-OECD Satellite Event at the Ocean Decade Conference in Barcelona, April 2024. The satellite event provided an opportunity to formally launch the collaborative initiative, with a

number of thought leaders providing case studies that brought to life key seabed mapping use cases.

53. Recommendation:

Commission members are invited to:

53.1 Take note of the engagement of the IHO Secretariat in the UN initiative and the items for further consideration.

IHO GIS and Databases

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

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

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 Circular Letter responses and updating P-5 and C-55 (CL20/2019 and CL03/2020 refers). Countries in the Commission's Region are invited to review their entry in the publications on an annual basis and provide the IHO Secretariat with the appropriate updates.

55. 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).

56. Recommendation.

Commission members are invited to:

56.1 Countries in the Commission's 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

57. In 2022, the IHO website had a total of 863,322 page views. There was a total of 706,436 page views during the period 1 January 2023 – 30 Sept 23. From 1 January 2023 to 30 September 2023, posts on the IHO LinkedIn account had 249,982 impressions. On LinkedIn, the IHR articles are very popular and tend to get the most views. Posts about the EWH project are also popular. The IHO has had more than 8.600 followers on LinkedIn in November 2023 (versus 2880 in November 2020).

58. There have also been several actions 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.

World Hydrography Day

59. With IHO CL 35/2023, the following theme for WHD 2024 was proposed for the Members States' approval:

"Hydrographic Information -Enhancing Safety and Efficiency 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 S-100 derivatives. The Secretariat would welcome any comments and suggestions aimed at improving the impact and the organization of annual WHD celebrations.

International Hydrographic Review (IHR)

60. Twice per year, the IHR provides an opportunity for Member States to publicize technical and other achievements in their regions. An editorial board comprising a representative from each region has been established. As it was announced through IHO CL 03/2022, since 5 January 2022 the IHR has a new editor, Dr Patrick Westfeld from Germany. Recently Dr Westfeld was confirmed for another two-year term as IHR editor.

61. 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.

62. At the 3rd Session of the IHO Assembly, the Review celebrated its 100th Anniversary with an IHR editor's report on the history, the achievements and evolution of the Review. The IHR May 2023 nr.29 issue was the jubilee issue and it was delivered to the Assembly's delegates.