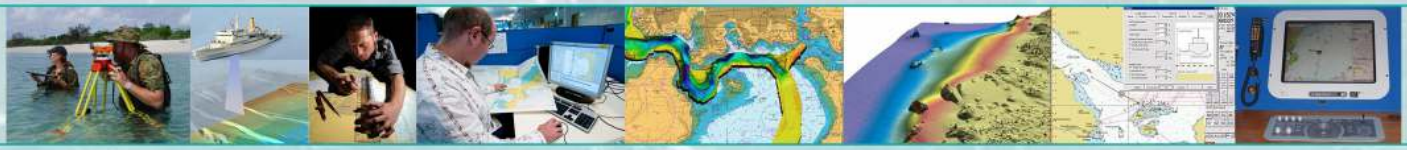


23RD MEETING OF THE MESO AMERICAN & CARIBBEAN SEA HYDROGRAPHIC COMMISSION (MACHC) AND SEMINAR ON RAISING AWARENESS ON HYDROGRAPHY AND MARINE SPATIAL DATA INFRASTRUCTURES

Saint Louis, USA, 28 November - 2 December

Contribution to the IHO Work Programme 2022	
Task 3.2.1.5	Prepare for and report meetings of the Regional Hydrographic Commissions: MACHC

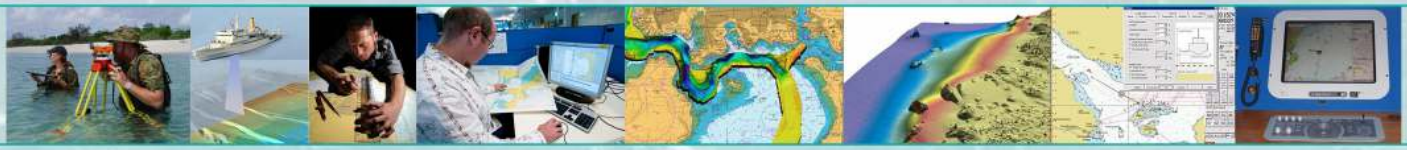
The 23rd Meeting of the Meso American & Caribbean Sea Hydrographic Commission (MACHC23) was held at the TREX / Moonshot Labs facility, Saint Louis, Missouri, USA from 28 November to 2 December 2022, with 85 participants representing 14 Member States, nine Associate Members, two observer States, five observer organizations and 13 industry members. Director Luigi Sinapi and Assistant Director Leonel Pereira Manteigas represented the IHO Secretariat.

An IHO Capacity Building Seminar on Raising Awareness on Hydrography and Marine Spatial Data Infrastructures (MSDI) was held on 28 November before the Conference.

On 29 November, after the pre-conference meetings of the MACHC working groups, the Conference started with the welcome address of the MACHC Chair, Admiral Renato Arruda (Brazil), who expressed his gratitude to the host organization and thanked all participants, as well as the ones attending by VTC. Mr John Lowell from the National Geospatial-intelligence Agency (NGA), Mr Matthew Borbash from the U.S. Navy, Admiral Bejamin Adams and Mr Brett Markham (NGA) as host Country's representatives, welcomed the participants and expressed their satisfaction with the number and diversity of the participants. They resumed the objectives and the challenging topics to be discussed during the meeting. The benefits of data sharing were mentioned as well as the experiences towards the goals and objectives of the commission.

IHO Director Luigi Sinapi greeted all participants, thanked Brazil for chairing the MACHC and the host Country for the long support to the IHO. He expressed the importance of the meeting for the region and its member states, and encouraged all to consider the key activities to the hydrographic community such as the S-100 Roadmap, the Capacity Building programme, the IHO Crowdsourced Bathymetry initiative and the Seabed 2030 project.

The U.S. Army Corps of Engineers informed the meeting on the importance of the Mississippi River Commission with a special focus on the diverse partnerships involved and some projects related with low water events and their prediction.

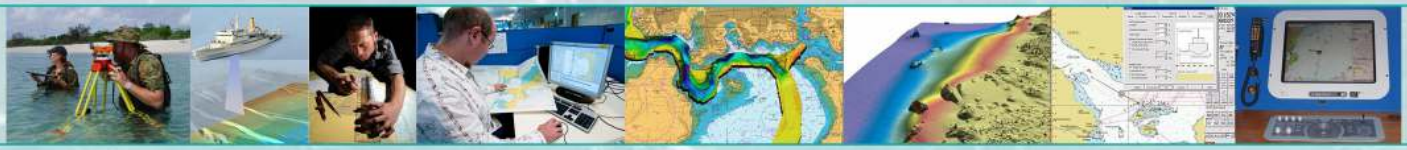


IHO Director Sinapi provided an overview of the IHO membership enhancing the fact that IHO Secretariat stands ready to assist non-member States to become IHO members. He reported on the highlights of the 6th Meeting of the Council, the decision to develop guidelines for the automated production of paper charts and the approbation of the guidelines on the implementation of the WEND-100 principles. He underlined the approval at the last meetings of the IMO NCSR and MSC, on the transition period for S-100 ECDIS to become legal to use after 1 January 2026 and that systems must comply from 1 January 2029. The Council also endorsed the Dual Fuel Concept for S-100 ECDIS Executive Summary and the IRCC proposals for measuring the SPIs. The approved CBWP activities for 2021 and 2022 was mentioned and all were encouraged to commence testing of the SafetyCast system. An update was provided on the Crowdsourced Bathymetry Working Group activities as well as on the GEBCO support through Seabed 2030. All were invited to review their entries in the IHO Yearbook and on C-55.

The Meeting proceeded with the update on the outcomes from 6th Meeting of the Council and the IRCC14 meetings. The WEND S-100 Product Matrix, the responses to the Survey on the Production of High Density ENCs the S-101 Scheming guidelines were highlighted. The feedback from the MSDIWG provided guidance on how a Hydrographic Office can use the FAIR data principles in their work and develop a MSDI FAIR principles check list. The revised IHO Capacity Building Strategy was approved and a CBSC Project Team was established to revise C-55. Publication B-12 IHO Guidance on Crowdsourced Bathymetry Edition 3.0.0 was endorsed and the GEBCO 2022 grid with 23,4% coverage was presented.

The IMO/IHO World-Wide Navigational Warning Service NAVAREA IV / XII reported on the IHO MSI Key Performance Indicator - SPI 3.1.1 with a target of 90% of Coastal States capable to provide MSI by 2026 and reported that in 2022 there was an increase in the MSI received from the National Coordinators by 56%. A MSI training course was held in Colombia.

Fig. 1 - Participants at the MACHC23 meeting



Due to the large number of Members and Associated Members, the presentation of national reports was divided into three groups and each group provided a report on the common points. On the main achievements of the previous year, Unmanned Aerial Vehicles used by some countries to map the shoreline, the acquisition of new survey technology, the support provided to some countries in the region and the MSP and MSDI governance in some countries were mentioned.

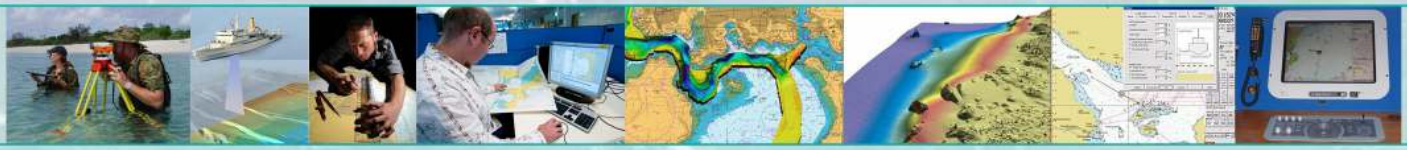
Mr Colin Young, IMO Regional Coordinator, reported on the IMO's E-navigation Strategy Implementation Plan (SIP) and the adoption of resolution MSC.467(101), Guidance on the definition and harmonization of the format and structure of maritime services in the context of e-navigation. The MSC 106 adopted resolution MSC.530(106) Performance Standards for Electronic Chart Display and Information Systems (ECDIS) and approved a revision of MSC.1/Circ.1503/Rev.1 ECDIS Guidance for Good Practice, which will be published as MSC.1/Circ.1503/Rev.2, encouraging ship operators, masters and deck officers on ECDIS-fitted ships to use this guidance. He also informed on the activities, outputs and preliminary indications of the Carib-SMART project that seeks to develop, design and secure regional endorsement, at the level of CARICOM.

Mr Minsu Jeon from IALA informed on the developments of the S-200 series of products and the test-bed developed on the import and export of S-201 data model and the portrayal, as well as on the recent joint IALA/IHO workshop on S-100 and S-200 development and portrayal. The strategy of IALA consists in developing and coordinating the product specifications with a focus on the technical service, promoting the S-200 test-bed and inviting members to participate and continue in close cooperation with IHO through regular joint workshops and technical cooperation meetings to harmonize the development of terms and definitions of AtoN.

The Hydrographic Society of America (THSOA) explained to the Commission how to become a member. The US Hydro 2023 conference will be held on 12 to 16 March 2023 in Alabama, USA.

Mr Jim Rogers, Chair of the MACHC MSDI, reported on the key accomplishments, mentioning the new members and the approach to other RHC MSDI WG to share best practices and knowledge. The MMSDIWG work-plan and the website were updated. The inventory pages with additional layers were enhanced as well as the most recent engagements and partnerships. The MMSDIWG Actions were summarized and the MS were asked to visit the page and update the Inventory-additional layers survey. The intention was expressed to continue with the incorporation of the UN GGIM principles and to have a workshop with the UN GGIM. Brazil also reported on the progress of the respective Marine Spatial Data Infrastructure (IDEM DHN).

Mr Rafael Ponce from Open Geospatial Consortium (OGC), Marine DWG Co-Chair, informed on the OGC Community, the respective standards and FAIR principles as well as different trends. The IHO-OGC collaboration on marine spatial data and innovation in the Marine Domain was stressed, highlighting the joint meetings with the IHO MSDIWG and the UN GGIM WG. The IHO-OGC Federated MSDI Pilot and its Phase 3 were described as well as the Digital Twin Challenge: Integration of Land and Marine data for Coastal Protection Planning, Critical Infrastructure Protection, and Resilience – all presented at the meetings in Singapore along with the respective outcomes.



NGA presented the developments of the Global Maritime Traffic Density Service (GMTDS): Mapping Global Maritime Vessel Traffic, which is a service that enables International Maritime Stakeholders to access tangible analysis of evolving marine traffic patterns, providing decision-makers with actionable information to help prioritize ocean areas for nautical product coverage.

The MACHC International Charting Coordination (MICC) reported on the respective activities and the ENCs availability progress. On the S-100 update, it was mentioned that the IC-ENC has dedicated a Learning Management System Dashboard discussion forum for MACHC. The ENC scheme was displayed as well as the MACHC Members production plan of S-100. It was also requested that Members provide authorization for the RENC's to provide CATZOC information to IHO. The MACHC ENC Gridding Scheme and the previous MACHC Actions and decisions in relation with the Scheme was mentioned, and the meeting was informed on the MICC CL Survey Questions. Finally, it was requested to endorse a phased implementation of the UKHO Rescheme plan for Usage Band 1.

The WEND-100 Matrix and the scores obtained by MACHC in the different products were presented. With reference to the S-100 Coordinator Role, it was concluded that the MACHC should have an S-100 coordinator, and that the S-57 and S-101 coordinators should be represented by the same person (the MICC Coordinator).

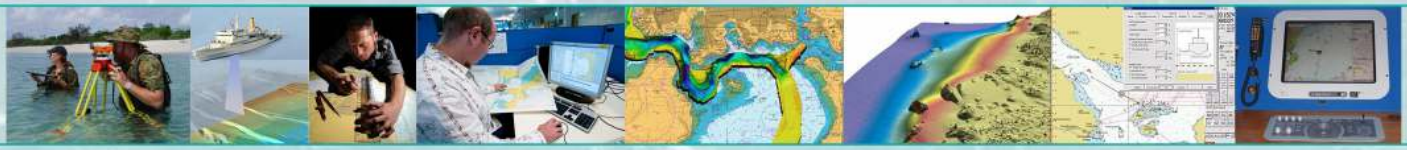
The Capacity Building (CB) Coordinator communicated the main points of the CBSC20 intersessional and CBSC20 meetings, enhancing the CB calendar, the approval of the CB Strategy and the activities completed by the *Empowering Women in Hydrography* project. The meeting was informed on the progress made by the e-Learning Center and the CB funded activities, as well as on the activities to be proposed for 2024. The Spanish Hydrographic Office presented the offer of courses funded by the Spanish government.

Colombia presented the workshop on MSI, funded by the Capacity Building Fund, which was hosted in September 2022, with the participation of 10 people from different countries and three different RHCs (MACHC, SWAtHC and SEPRHC).

Mr Greg Brouk, (NGA) presented the U.S. National Strategy related to the use of remote sensing and the partnerships with the industry.

The meeting received a presentation on the main activities of the SEPRHC, a neighbouring region that informed on previous meetings and the most important executed Capacity Building activities.

The Seabed 2030 and CSB Coordinator, Ms Cecilia Cortina, reported on the IHO recommendations and the importance of the regional contribution to the Ocean Decade Challenge 8 – *Develop a comprehensive digital representation of the ocean*. She also mentioned the evolution of the available seabed data in the region (see Fig.2), concluding with the work-plan for 2023.



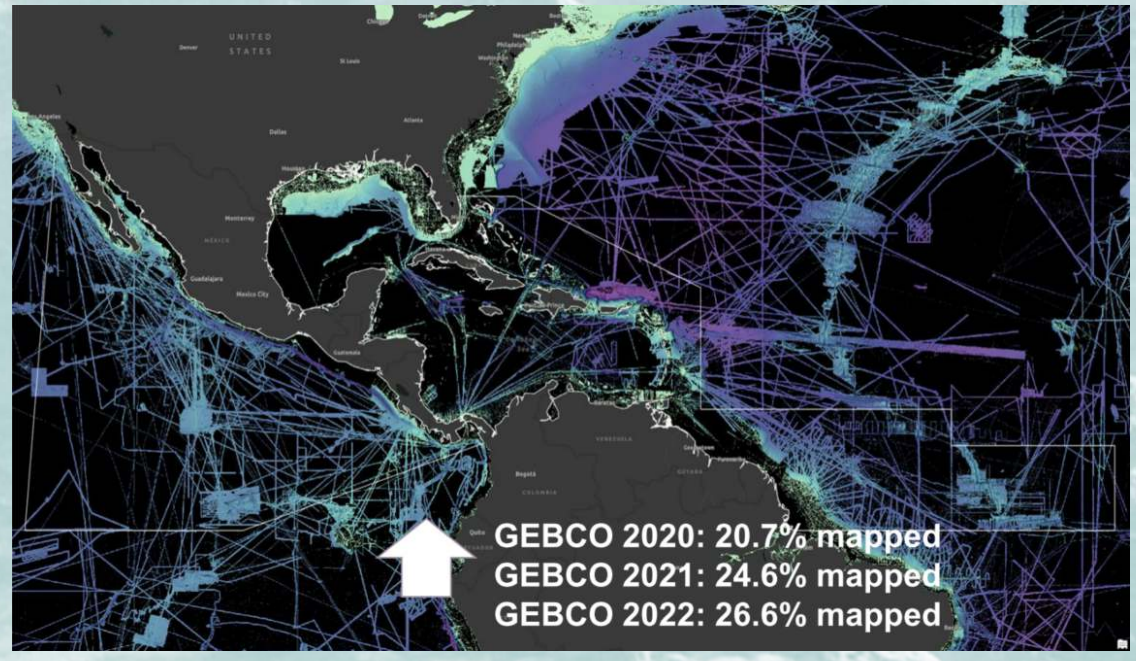


Fig.2 - Evolution of the available seabed data in MACHC

The meeting approved the establishment of a MSI Working Group in MACHC that was proposed by WWNWS and chaired by the USA.

For the positions of MACHC Chair and Vice Chair it was decided that the UKHO will ascend to Chair and Suriname as Vice-Chair. On the election of MACHC representatives to IHO Council, Jamaica and Netherlands were selected.

Suriname offered to host the MACHC24 conference in 2023 (dates TBC). Jamaica informed that they will evaluate the possibility to host the MACHC25 conference in 2024 and provide information to the MACHC members by January 2023.