

**13th MEETING OF THE IHO INTER-REGIONAL COORDINATION COMMITTEE
(IRCC-13)
VTC Meeting, 23-25 June 2021**



**MESO AMERICAN - CARIBBEAN SEA HYDROGRAPHIC COMMISSION
Report to IRCC13**

1. Chair:

- Chair:** Vice Admiral Edgar Barbosa, Brazil, from 1 March 2021 to present
Ms. Kathryn Ries, USA, from 1 March 2019 to 28 February 2021
- Vice-Chair:** Rear Admiral Rhett Hatcher, United Kingdom, from 1 March 2021 to present
Vice Admiral Edgar Barbosa, Brazil, from 19 February 2020 to 28 February 2021
Vice Admiral Marcos Sertã, Brazil, from 28 August 2019 to 19 February 2020
Vice Admiral Antonio Garcez, Brazil, from 1 March 2019 to 28 August 2019

2. Membership:

Members: Brazil, Colombia, Cuba, Dominican Republic, France, Guatemala, Guyana, Jamaica, Mexico, Netherlands, Suriname, Trinidad and Tobago, United Kingdom, United States of America, Venezuela

Associate Members: Antigua and Barbuda, Barbados, Belize, Costa Rica, El Salvador, Grenada, Haiti, Honduras, Nicaragua, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines

Observer Countries: Dominica, Spain

Observer Organizations: AMEXCID, CDEMA, CLIA, COCATRAM, IADB, IALA, IC-ENC, ICG/Caribe EWS, IMarEST, IMO, INEGI, INVEMAR, IOCARIBE, MapAction, Marine Conservation, OECS, THSOA, University of the West Indies

Observer Companies: ARGANS, AXYS Technologies, EOMAP, Esri, Fugro, HYPACK, IIC Technologies, iXblue, Kongsberg, OceanWise Ltd, QPS, Teledyne CARIS, TCarta

3. Meetings:

20th Conference - Santo Domingo, Dominican Republic (4-6 December 2019).

21st Conference - hosted by USA and held in virtual format (November 30 - December 3, 2020).

Next Conference: 22nd Conference will be held, in early December 2021, in person or in virtual format in the USA, depending on the pandemic situation.

4. Current MACHC Working Groups:

- a) [Capacity Building Committee \(CBC\)](#)
- b) [MACHC International Charting Coordination Working Group \(MICC\)](#)
- c) [MACHC Marine Spatial Data Infrastructure Working Group \(MMSDIWG\)](#)

5. Status of IRCC Actions relevant for the MACHC:

N.	Action	Status
1	RHC to Instruct Member States in the promotion and distribution of publication of S-67 Mariners' Guide to Accuracy of Depth Information in Electronic Navigational Charts (ENC) to the Marine Institutions and Education Schools.	MACHC Action Some MACHC Members reported having complied.
2	Member States to review the paper on the Future of Paper Charts and provide feedback on it.	MACHC Action Some MACHC Members reported being involved in this matter.
3	Member States strongly encouraged to continue updating C-55.	MACHC Continuous Action Some MACHC Members reported having complied.
4	RHC to implement the IHO Resolution 2/1997 as amended by A-2.	MACHC Action Ongoing
6	Invited the Member States who have experience in developing and providing e-Learning contents to share their resources and experiences to the e-LearningPT.	MACHC Action Some MACHC Members reported being involved in this matter.
11	Promote the discussion of any item with relevance to SDI/MSDI/MSP and to take appropriate actions.	MACHC Action MMSDIWG is working on it.
12	Consider CSB and Seabed 2030 initiatives be permanently added as an agenda item at future RHC meetings.	MACHC Action Done
13	Encourage Member States to support the CSB initiative with positive actions, such as requiring all research vessels to collect bathymetric data for later uploading, when on passage or when it does not interfere with other research activities.	MACHC Action Done Joint MACHC-IOCARIBE Seabed 2030 Strategy and its Work Plan support.
14	Support the modification of the current "RHC Seabed 2030 Coordinator" to a joint "RHC CSB/Seabed 2030 Coordinator" and provide the identification of the Coordinators.	MACHC Action Done
16	Encourage Member States to release datasets or subsets into the public domain via the IHO DCDB.	MACHC Action Done Joint MACHC-IOCARIBE Seabed 2030 Strategy and its Work Plan support.
17	Encourage Member States to promote the vital need to map the entire seabed.	MACHC Continuous Action Joint MACHC-IOCARIBE Seabed 2030 Strategy and its Work Plan support.

19	Encourage all Member States to make existing seabed mapping data available for use by Seabed 2030 in the GEBCO Grid.	MACHC Continuous Action Joint MACHC-IOCARIBE Seabed 2030 Strategy and its Work Plan support.
20	RHC to participate at Regional level in those actions of the UN Ocean Decade matching with IHO's new strategic targets (IRCC12-08C).	MACHC Action Done. Joint MACHC-IOCARIBE Seabed 2030 Strategy submitted for IOC endorsement (Call for Decade Action 01/2020)

6. Agenda Items:

Maritime Safety Information (MSI) / World-Wide Navigational Warning Service (WWNWS)

The [MACHC MSI Status Matrix](#) and [MACHC MSI Training Status Details](#) on the [MACHC Initiative website](#) provide a color-coded representation that describes the level of MSI support National Coordinators provide to NAVAREA IV, NAVAREA V and NAVAREA XII. This matrix is used to identify and prioritize future MSI training and support within the MACHC.

Year 2020 was particularly busy for the promulgation of navigational warnings with an unprecedented number of storms and hurricanes, and the WWNWS issued numerous navigational warnings informing mariners regarding port closures due to these dangerous storms, allowing them to adjust their course to navigate more safely to a different area, or to remain out of harm's way.

The NAVTEX stations in the MACHC region enhance the capacity the coastal warning service. Colombia established two new NAVTEX stations.

With the eruption of the volcano La Sufrière in the Saint Vicent and the Grenadines, at the beginning of April 2021, NAVAREA IV issued navigational warnings.

Capacity Building

MACHC Members have contributed to the last editions of the International Hydrographic Review (IHR).

In November 2020, a webinar on Satellite-Derived Bathymetry (SDB), supported by EOMAP, Esri and TCarta was conducted, exploring the technology and possible applications of SDB. Other SDB capacity building opportunities were shared with MACHC Members: the Earth Observation Clinic or EO Science for Society Program; the Earth Observation Resilient Society; a webinar with in-depth use cases and applications, in December 2020, held by TCarta and Esri; and 3rd International Conference on SDB, also known as SDB Day 2021, which happened in January 2021.

In recognition that the IHO CB funding resources are not enough to meet the regional demand, the MACHC is actively seeking and leveraging CB partnerships with other regional organizations and stakeholders who have common capacity building needs. These include the Central American Commission for Maritime Transport (COCATRAM), Inter-American

Development Bank (IADB), the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS), IALA, IMO, IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE) and neighboring RHCs (SEPRHC, SWAtHC).

MACHC Members have been notified about the IALA webinars that took place in January 2021 (AtoN Remote Monitoring and Buoys Moorings) and February 2021 (AtoN Light Characters and AtoN Maintenance).

An excellent example of these kinds of strategic partnerships is that the IHO-funded MACHC Training Course for 2021 (Tides and Water Levels for Spanish Speakers) is co-sponsored by multiple regional partners (COCATRAM, ICG/CARIBE EWS, SEPRHC, SWAtHC and the MACHC). However, due to the impacts of COVID-19, it may not be held in 2021. MACHC has requested that the funding for this training be carried over to 2022 so that this opportunity will not be lost. The other co-sponsors (IOC and COCATRAM) are carrying over their funds into biennium 2022-2023 for this purpose and Costa Rica is committed to hosting the course in their country in 2022.

The candidates of Colombia, Cuba, Dominican Republic and Guyana were selected for the 2021 Category “B” level Geospatial Marine Analysis and Cartography course, funded by the Nippon Foundation and hosted by the United Kingdom.

The IHO-funded capacity building activities for MACHC in the IHO CB Work Programme 2021 (the High-Level Technical Visit to the Dominican Republic, the High-Level Technical Visit to Jamaica, the Technical Visit to Honduras and the Seminar on Raising Awareness of Hydrography), will be carried out in the second half of 2021 depending on the pandemic situation. MACHC has requested that the funding for these events be carried over to 2022 so that these opportunity will not be lost.

As part of the Empowering Women in Hydrography initiative, the USA offered space for 2-3 women a year on NOAA hydrographic vessels starting in 2022.

The “Assessment of Capacity Building Phases of Coastal States” based on IHO CB Procedure 11 is constantly updated. It will be used to better evaluate, prioritize and focus future capacity building training.

The importance of keeping the IHO Publication C-55 current, as this is utilized in the IMO audit, has been highlighted to MACHC Members.

Nautical Charts and Publications

The availability of ENC's and of INT Charts in Region B stands at 964 and 54, respectively. There are still 30 INT Charts schemed for Region B.

MACHC regularly performs Cruise Ship Ports Gap Analysis to identify gaps added anchorage areas to list of ports, identifying 207 ports and anchorage areas with only 17 not covered by nautical cartography.

MICC sub-working group is developing a MACHC ENC Scheme for Usage Band 1.

Testbeds for S-100 series products by MACHC Members were reported to be in progress: S-102 (Bathymetric Surface) by the Netherlands, S-111 (Surface Currents) by the USA and S-122 (Marine Protected Areas) by France.

Colombia as chair of IOC IBCCA Project announced the conclusion of the 16 schemed maps. Will start soon the second phase of the project, increasing the data resolution and leveraging the participation and the capacity of national Hydrographic Offices and research institutions.

Survey and Risk

MACHC and IOCARIBE promoted four [Seabed 2030 Webinars](#) in September and October 2020 on the following subjects: Current Mapping Status; How to Build the Map: Sharing Data and Attribution; Increasing Data Coverage: Crowdsourced Bathymetry (CSB) and Related Tools; and draft joint MACHC-CARIBE Seabed 2030 Strategy.

MACHC approved the expansion of the title of the MACHC Seabed 2030 Coordinator to “MACHC CSB/Seabed 2030 Coordinator”.

It was approved the [MACHC-IOCARIBE Seabed 2030 Strategy](#) and its [Work Plan for 2021](#), and decided to submit the Strategy by January 15, 2021, to be considered for endorsement as an UN Ocean Decade Program.

Polygons with the gaps where no bathymetric data is recorded (distances greater than 1,000 m) in the MACHC region have been sent to the national points of contact to the MACHC CSB/Seabed 2030 Coordinator.

Response to Disasters

A [Response to Disasters](#) section has been established since 2019 on the [MACHC Initiative website](#). This section is been filled with more information about National Points of Contact, Disaster Contingency Plans, Response Capabilities and Past Event Responses.

The hurricane season in 2020 ended with a record of more than 30 storms.

Colombia shared how it responded to hurricanes Eta and Iota. A hydrographic team was deployed to carry out hydrographic surveys in order to generate plans and charts and verify navigable areas, anchoring, and other areas of interest for navigation.

NOAA/USA has a series of navigation response teams that conduct hydrographic surveys on small vessels to update NOAA’s suite of charts. These teams are strategically located around USA and remain on call to respond to emergencies in order to restore resumption of shipping after storms and to protect life and property from dangers to navigation. During the pandemic, recreational vehicle rentals were deployed due to the scarcity of available lodging and restricted protocols, such as, virtual planning, personal protective equipment and social distancing, were applied. In 2020, NOAA responded to four hurricanes (Laura, Sally, Delta, and Zeta) with the navigation response teams and the NOAA Ship Thomas Jefferson.

Brazil presented the response that the State of Brazil gave to the oil spill that hit the Brazilian coast as of October 2019. Many national, international and foreign organizations supported the investigation with resources and information. About 5,340 tons of oil residues hit the Brazilian

coast, affecting 3,600 km, 130 cities and 11 states, from the north coast to the southeast coast. The head of the Brazilian Hydrographic Office was the head of the investigation. It was very important the knowledge of the marine environment and it was necessary to apply a multidisciplinary analysis, such as oil geochemistry analysis, mathematical modeling, maritime traffic analysis and dispersion of oil at sea.

Marine Spatial Data Infrastructure

After the first MSDI Workshop within the MACHC region using the new IHO MSDI training materials, MACHC is developing this activity.

Updated the [MMSDIWG](#) section in the [MACHC Initiative website](#) and used it as a method for sharing meeting materials and useful links with Member States, industry partners, academia and potential users.

MACHC is engaging with multiple stakeholders on MSDI use cases / partnerships in the MACHC region to advance the use and sharing of geospatial information to support improved decision making for sustainable national and regional development. These include: Economic Assessment of Risks in Maritime Navigation across the Greater Caribbean Region Project; Risk Assessment and Mitigation Measures of Maritime Navigation in the Caribbean Sea; Disaster Response Support; Gulf of Mexico Marine Protected Area Network (RedGolfo); Caribbean Marine Atlas (CMA); Caribbean GeoPortal; Caribbean Geospatial Development Initiative (CARIGEO) and UN-GGIM/WG-MGI.

A MSDI Inventory survey was conducted in 2020 to help MACHC document the various existing MSDI and SDI web resources within the MACHC region, the results of which can be found in “MACHC MMSDIWG Inventory Survey Results”. Subsequently, another survey was carried out on the MSDI Inventory for the Additional Layers for the MACHC region based on the feedback from potential non-navigation users. These layers will support many use cases found in the region. The results of this survey can be found in “MACHC MMSDIWG Inventory - Additional Layers Results”.

MACHC is working to create bathymetric data protocols to ensure users, such as MapAction, can more efficiently support disaster relief efforts within the MACHC region. The protocols define the process for requesting the data, ensure that the data is made available in the appropriate formats, and defining the process for sharing the data with the disaster response organizations.

7. MACHC cooperation with stakeholders (organizations, industry, academia):

Several partnerships are already being leveraged or cultivated to advance MACHC capacity building, MSDI and Seabed 2030 initiative.

8. Conclusions:

MACHC, in collaboration with other international, regional and bi-lateral partners, is committed to carrying forward hydrographic, nautical cartography, MSDI and capacity building activities in close alignment with IHO objectives and goals.

9. Achievements and Lessons Learned:

Despite of the coronavirus pandemic, MACHC arranged to organize virtual meetings of its Committee/Working Groups, webinars on the Seabed 2030 Project, webinar on SDB and the MACHC Conference in virtual format.

The effort to publicize IHO-funded trainings resulted in the selection of four candidates for a Category “B” Nautical Cartography program from IHO Member States in the MACHC region.

The partnership with IOCARIBE to establish a joint strategy to support the Seabed 2030 Project resulted in a submission in January 2021 for IOC endorsement (Call for Decade Action 01/2020).

The value of increased collaboration across RHCs and regional partnerships for capacity building training, Seabed 2030 (including the development of a regional Strategy and an annual Work Plan), MSDI and other requires concerted effort to identify the specific activities of common interest and sustain those connections.

10. Actions required of IRCC:

The IRCC is invited to take note of this report.

Vice Admiral Edgar Barbosa
Chair, Meso American - Caribbean Sea Hydrographic Commission