



MINUTES
18^a CONFERENCE OF THE MESO AMERICAN AND CARIBBEAN
SEA HYDROGRAPHIC COMMISSION (MACHC 18)
Varadero, Cuba.
29 November – 02 December 2017

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MINUTES
18TH MACHC CONFERENCE
29 NOVEMBER- 02 DECEMBER 2017

The formal opening of the 18th Conference of the Meso American and the Caribbean Sea Hydrographic Commission (MACHC) took place on Wednesday 29th November 2017. The formal opening was preceded by two days of seminars on raising awareness of hydrography. On Monday 27th and Tuesday 28th November 2017, the Seminar focused on Hydrographic governance and challenging environments.

Rear Admiral Enrique Flores Morado (Deputy General Director of Oceanography, Hydrography and Meteorology; and Chairman of this MACHC Conference) welcomed all the MACHC participants to the conference and to the city of Varadero, Cuba. Praised for their welcome. He mentioned the phenomena of nature that hit the countries of this Commission. He appreciated the solidarity of all those who provided moral support.

Rear Admiral Mustafa Iptes, Director of the International Hydrographic Organization, welcomed all participants to the conference and mentioned that Regional Hydrographic Commissions are very important element of hydrographic activities, because they are established to coordinate Member States cooperation in a specific region. The spirit of a Regional Hydrographic Commission is to offer technical cooperative and collaborative support and their meetings contribute to this purpose.

Photo Session



XVIII REUNIÓN DE LA COMISIÓN
HIDROGRÁFICA MESOAMERICANA Y DEL MAR CARIBE (MACHC18)
Del 27 de Noviembre al 2 de Diciembre de 2017, Varadero, Cuba



1. MACHC Administration/organizational issues

1.1 Introductions

On Thursday, 30th November 2017, the plenary meeting started. All participants were invited to introduce themselves.

1.2 Approval of Agenda and timetable

Chair invited participants to comment on the agenda and timetable in case updates were necessary. Rear Admiral Tim Low from United Kingdom asked the Chair to change the CBC Report time on the schedule, because the president of the Committee, Jeff Bryant, would leave early the meeting. It was discussed, and the agenda was adopted.

See related document, [MACHC 18-01.2 Agenda and Timetable](#), to complete the report.

1.3 List of documents/Administrative Arrangements

All documents and presentations of this meeting will be made available on the MACHC section of IHO website after this meeting:

https://www.iho.int/mtg_docs/rhc/MACHC/MACHC18/MACHC18_Docs.htm

Chair asked all to check their names and e-mail addresses on the attendants' list that was going around the room.

The Chair noted the quorum for a formal MACHC Conference was achieved, which means that the meeting has decision making status.

The Chair reminded the participants that audio recordings of the conference were made and asked if there were objections to this. There were none. The audio recordings will be deleted after the minutes of the MACHC 18 conference are finalized.

See related documents, [MACHC18-01.3A List of Documents](#) and [MACHC 18-01.3B List of Participants \(Invited and present\)](#), to complete the report.

1.4 Matters arising from Minutes of MACHC 17 Meeting

The final draft version of the MACHC 17 meeting minute was sent out on March 15th, 2017.

There were no comments on the minute; therefore the minute of the MACHC 17 conference was approved.

Decision

To approve the minute of the 17th MACHC Conference

See related document, [MACHC 18-01.4 Minute of MACHC 17](#), to complete the report.

1.5 MACHC 17 Action list review

A list of the actions items was shown on the screen. To save processing time at the Commission meeting, the Chair showed the status of the actions of MACHC 17 and asked the States to review it. Those issues were discussed.

The results of the discussions are listed as the column "Status after 18th MACHC" in three tables in Annex A to the minutes:

Table 2: OPEN ACTIONS ITEMS AT START OF 18TH MACHC

Table 3: CONTINUOUS ACTION ITEMS AT START OF 18^{TU} MACHC

Table 4: CLOSED ACTION ITEMS AT START OF 18TH MACHC

Decision

To accept the proposed status updates for MACHC action items.

See related documents, [MACHC 18-01.5 Status of Action List from MACHC 17](#), which served as input to the discussions at the conference.

2. MACHC Developments IHO bodies/Policy aspects

2.1 IHO Secretariat Report

Rear Admiral Mustafa Iptes provided a summary report of matters of interest related to the work of the IHO Secretariat. The status of Membership of the IHO had updates with the join of Malta and Vanuatu. 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 (UN), there is no requirement to seek the approval of existing Member States of the IHO. Accordingly, Bulgaria, Congo, Haiti, Mauritania, Sierra Leone and Solomon Islands, which have already applied for membership of the IHO, may now submit their instruments of accession to the Convention to the IHO and thereby become members immediately. He mentioned that Associate Members of the MACHC, Antigua and Barbuda, Barbados, Belize, Costa Rica, El Salvador, Guyana, Haiti, Honduras, Nicaragua, Panama, Saint Lucia, St. Kitts and Nevis, and St. Vincent and the Grenadines are all Member States of the UN and have not yet registered to be members of the IHO. Admiral Iptes encouraged Members and associate members of MACHC to get involved with the other coastal States in the region to raise awareness of the value and importance of hydrography and to become members of the MACHC and the IHO. The Dominican Republic is working to be reintegrated into the International Hydrographic Organization. He mentioned the IHO Secretariat in cooperation with the Department of External Relations of the Government of Monaco, is willing to assist to become members of IHO, those States of the MACHC region that are not yet members, through diplomatic or other channels.

Admiral Iptes also spoke of the current web-based version of S-11 Part B for Region B, edition 3.0.1. The new edition of this publication are updated to February 2017, it informs that 50 of 82 INT charts in the scheme are available to date (61%). A new edition is expected to be published, in coordination with the INT Chart Regional Coordinator, after the MACHC18. The MACHC Member States are encouraged to continue supporting the INT Chart Regional Coordinator, by providing the IHO Secretariat with periodic updates of S-11. The Coordinator of the ENC Scheme of Region B participated actively in the 7th meeting of the WENDWG (January 2017). He mentioned that there is no significant ENC overlap in the MACHC Region and invited the Member States of the MACHC region to approve the new IHO Resolution on the elimination of overlapping ENC data (IHO CL 65/2017 refers). He invited all Member States of the MACHC region to provide the IHO Secretariat with periodic updates of the C-55 at least once a year. He thanked the delegates for sending updated information to the Secretariat through info@iho.int or by mail.

Admiral Iptes described the work on the development of the IHO GIS, which is composed of a database of country information and a database of regional information. He also invited the countries of the MACHC Region to verify their entry in the Yearbook and to provide the IHO Secretariat with any update or a report indicating that there are no changes. He reported that the Catalog of the IHO ENC and the GIS of the IHO for Antarctica have already been transferred to the regional information database. He spoke about the work in the development of a GIS database application to support the C-55 and the investigation of useful options to visualize

the data in the IHB C-55 GIS. He mentioned The Secretariat will implement an online registration system, funded and developed by the Republic of Korea, for IHO meetings. He noted the themes of the 2017 World Hydrography Day (WHD 2017) which is available in the report on WHD-2017 on the IHO website. The IHO Secretariat also proposed a theme for WHD 2018 that focuses on hydrography in relation to the UN Agenda 2030 (CL 62/2017 of November 13). The IHR (International Hydrographic Review) offers an ideal opportunity for Regional Hydrographic Commissions and Member States to announce technical and other achievements in the region. An editorial committee has been established, represented by Mr. Chris THORNE (United Kingdom), giving deadlines to send the documents and be considered for publication in the IHR.

He indicated that the IHO Secretariat continues its campaign to find more donor States and required funding organizations. MACHC benefited from some activities since the last meeting, which were: the follow-up visits to Haiti, led by EE. UU with Brazil and France; the MSI course, led by the UKHO, in Barbados; the seminar on awareness of hydrography, directed by UKHO, in Varadero, Cuba and the attendance to the 2017 edition of the program of Category "B" of the UKHO. He also mentioned that Technical implementation visits to El Salvador would be made in December 2017 and to the Dominican Republic in January 2018, and the activities that will benefit the MACHC this 2018 which are: Technical visit to Guatemala, Multi-beam Echo Sounding processing, Tides and Water Levels for Spanish speakers and Seminar on Raising Awareness on Hydrography.

He said Crowd-Source Bathymetry Working Group is intensively working on a CBC Guidance document with a target completion date for the final draft in the first quarter of 2018. He reported the update of the IHO Data Center for digital bathymetry (Boulder, Colorado) to be compatible with crowd-sourced bathymetry concept.

Rear Admiral Mustafa Iptes concluded his report requesting the MACHC to note this report, to provide continuous updates to S-11 Part B, through the coordinator of INT Region B, to review entries in IHO Publications C-55 and P-5 (Yearbook) at least annually. Also, to provide continuous updates to S-11 Part B, for INT Region B, through the INTGIS tool and implement the procedure for the review and monitoring of INT charts, to report the IHO Secretariat on the status and description of the ENC schemes in Region B and to consider submitting papers for publication in the International Hydrographic Review.

2.2 Council Report

In general affairs, Captain van der Donck announced the results of the election for Chair (Rear-Admiral Shepard Smith from USA) and vice Chair (Admiral (Ret) Luiz Fernando Palmer Fonseca) of the council. He also spoke about the chair's leadership. About the roles and objectives of the council, he said they have focused on strategic issues and priorities. He mentioned that they are outlining some work with IMO (International Maritime Organization) and UN. He expressed that he wants to avoid introducing a new layer of bureaucracy.

He spoke about the scope of the council's tasks and responsibilities. About that, he referred to some documents that did not seem completely consistent and the relations of the Council with

the Assembly, during the periods between sessions, and with the subsidiary organs of the IHO and raised two questions: What is the mandate to take initiatives? Does the council need to support the technical standards?. He explained that, the Council agreed to continue with the current procedures for the endorsed proposals of IRCC and HSSC, while acknowledging the contradiction between the guidance given in the convention and the general regulations pending clarification at the second session of the meeting, but it was also agreed to make a short list of strategic priorities of their work programs, which allows the council to make recommendations.

It was also proposed as a council action for HSSC and IRCC to consider the tasks and responsibilities of the Council and the resolution 2/2007 of the IHO as an amendment, because it is up to the chairs of HSSC and IRCC to assess and determine the need to go through the Council for recommendations of possible strategic importance, and to the IRCC to assume responsibility for the policy issues related to the WEND until the council is established.

Captain van der Donck mentioned about the Review of the Strategic Plan of the IHO, that the UKHO gave a presentation with considerations for a new strategic plan. The decisions of the council were: to establish a Strategic Plan Review Working Group, to endorse the drafts of the terms of reference developed by the drafting group and to support Bruno Frachon as chair, Shigeru Nakabayashi as vice chair and Doug Brunt as secretary of SPRWG.

Regarding the HSSC report to the council, Captain van der Donck expressed that the president of the Committee emphasized the importance of the S-100 and S-101 framework, the interoperability of multiple standards, the presentation of hazards and dynamic diagrams, the next generation of S-4, requesting the PCB to be financed with funds from the Special Projects of the IHO. The Council's decision was: HSSC to establish a prioritized list of work items that need to be supported by the Fund for Special Projects.

Regarding the IRCC Report, Captain van der Donck, mentioned that emphasis was placed on the need for more administrative support for capacity building, a new IHO Resolution proposal on the overlapping of ENC data and the benefits of using SDB for risk assessment. In this matter, he proposed on behalf of MACHC, to find means to finance the provision of CB activities at a steady and reliable pace. The action taken by the Council was for the SG to investigate further and report on the feasibility of recruiting a new staff member in the IHO Secretariat to provide management support for capacity building, as a matter of urgency. The Council supported the proposed IHO Resolution to address issues related to the existence of overlapping ENC data, giving RHCs responsibility for identifying and evaluating the areas of overlap and associated risk. The Council supported the proposed revocation of Resolution 1/1992 of the IHO. The RHC will now be responsible for monitoring the INT charts and must ensure that the new INT charts meet the specifications. The Council endorsed the new proposed edition 2.0.0 of IHO Publication C-17.

The 2018 council work plan consider the following corporate matters: contribution to the IMO-OHI Harmonization Group on Data Modeling, evaluation of the scope and efficiency of participation in events outside the hydrographic interest core, plan and start a complete review of the IHO website, including the incorporation of GIS services, manage the anticipated

wave of new membership of the IHO, assist the Council in its operational consolidation phase and contribute to the revision process of the Strategic Plan.

The priorities and the 2018 work plan regarding the Hydrographic Specifications and Standards includes the next topics: develop an S-100 Interoperability Specification; develop all the components needed to make S-101 a reality; develop S-121 product specifications for maritime limits and boundaries; consider data quality aspects in an appropriate and harmonized way for all S-100 based product specifications; prepare Ed. 6.0.0 of S-44 and develop initial guidance on definition and harmonization of Maritime Service Portfolios. The priorities of the 2018 work Plan on Interregional Coordination consider the following: Capacity Building (CB) provision, need for additional funding, permanent CB coordinators and additional CB assistance in the IHO-Secretariat; continued development and maintenance of ENC and INT Chart Schemes, lack of appropriate surveys or re-surveys in areas where there is no satisfactory coverage; development of crowd sourced bathymetry (CSB) guidelines, there has been a low response from MS on the draft of CSB guidance, and ongoing skepticism on the CSB concept amidst the maritime community; The Seabed 2030 Project Management Plan, establish robust fund management and supervision of project activities, coordinate with the ongoing IHO CSB initiative, highlight seabed mapping projects in all relevant platforms; Marine Spatial Data Infrastructures (MSDI), funding for the Concept Development Study (CDS) for MSDI pending IHO approval and low MS engagement on MSDI-related activities.

Capitan van der Donck also talked about the council decisions, which were: to endorse the proposals made by the IHO SG and Directors on the key priorities in the IHO 2018 program of work; encourage MS and the IHO Secretary to consider the engagement with the UN-GGIM Working Group on Marine Geospatial Information, re-evaluate the allocation of their resources in the light of key work items to be supported.

He noted that, the Acting Chair of the HSSC and the Chair of IRCC stated that they had been consulted and were in support of the priorities presented by both Directors.

One third of Council seats are allocated to the Member States based on their "hydrographic interest". Currently, the hydrographic interest is derived from the IHO formula to calculate the tonnage of the national flag. There is a requirement for the Second Session of the Assembly in 2020 to reconsider what constituted an interest in hydrography. The Council was invited to include considerations of this definition in its Work Program.

The Council agreed that no formal or cohesive views of the Board should be communicated, individual opinions of Board members could be communicated as set out in the minutes of the meeting.

2.3 IRCC9 Report

Captain van der Donck also presented a report on the IRCC9 meeting. The content of the IRCC report included the report of MACHC to the IRCC9, content on the IBSC, the list of actions of the IRCC9 and the work plan of the IRCC9. The report of the MACHC included CB, MEIP and MICC activities. He reported also to the IRCC9 some of the difficulties encountered and challenges yet to be addressed by the MACHC region, further developments on the use of Spanish, high cost of surveys and the limits on national budgets and that full ENC coverage has

not yet been achieved. Standards of Competence for Hydrographic Surveyors, draft New Editions 1.0.0 of the IHO Publications S-8A and S-8B Standards of Competence for Category "A" and Category "B" Nautical Cartographers were endorsed during the IRCC9. Captain van der Donck noted that IRCC9 displayed an endless list of actions that led him to conclude that there are a lot of actions and problems of work plans because they are all flooded with work and in the end, there are no concrete results. The above is not effective because we find excess bureaucracy. It is necessary to simplify the work taking the priorities approved by the council as directives to be made. A filtered Action list and work plan was presented by Captain van der Donck and can be consulted

See related document, [MACHC 18-02.3 IRCC Report](#)

2.4 HSSC9 Report

Commander Paulo Matos talked about the main activities and achievements during the HSSC9 meeting, which were : the Election for Chair **Captain Luigi Sinapi (Italy)** and Vice Chair **Mr. Mike Prince (Australia)** of the HSSC; activities programmed by the S-100WG for the next edition of S-100; publication of new editions of S-52, S-58, S-64, S-65 and S-66 (ENCWG) and the problem in the integration of the high density bathymetry in electronic nautical charts in the ENC standards maintenance working group; activities within the nautical cartography working group (NCWG) as Maintain and extend S-4, the future of the paper chart, Maintain and extend S-11 Part A; the limitations and deficiencies of S-44 exposed by the Hydrographic Survey Project Team (HSPT); he also commented on the IHO Guidance Document on Crowd Sourcing Bathymetry (CSBWG), and the support to this initiative by the International Cable Protection Committee (ICPC); as well as the next meetings venues as follows, HSSC-10 (2018, Rostock, Germany), HSSC-11 (2019, Cape Town, South Africa) and HSSC-12 (2020, Taunton, UK).

Commander Paulo Matos requested the MACHC Conference to take note of the report, and encourage Member States to participate in HSSC meetings and its subsidiary Working Groups.

See related document, [MACHC 18-02.4 HSSC Report](#)

2.5 MSI/WWNWS9 Report

Commander Paulo Matos presented this report because the delegation of the United States could not attend the Meeting.

First Commander Matos gave a scope of the World Wide Navigational Warning Service, highlighting the importance of national coordinators who must be informed of all the events that may significantly affect the safety of navigation within the NAVAREA and assess all information immediately upon receipt in the light of expert knowledge for relevance to navigation in the NAVAREA. The National Coordinator should strive to be informed of all events that could significantly affect the safety of navigation within their national waters.

Captain Matos spoke of the collection and circulation of nautical information as the first phase of capacity development. It is understood that this allows the real-time integration of national maritime safety information to be part of the World Wide Navigational Warning Service (WWNWS), as well as an understanding of their roles and responsibilities and the establishment of links with the NAVAREA coordinator.

See related document, [MACHC 18-02.5 MSI/WWNWS Report](#)

3. National Reports from Members and Associate Members

The president read a letter sent by the maritime authority of Grenade to inform the wishes to become an associate member of the MACHC. After the letter was read, the Grenade acceptance agreement was signed as an associate member.

The following (Associate) Member States provided the Commission with a briefing on their national report: Antigua and Barbuda, Belize, Brazil, Colombia, Cuba, Dominican Republic, France, Guyana, Haiti, Mexico, Netherlands, Panama, Saint Vincent and the Grenadines, Suriname, United Kingdom, United States of America.

See related documents, [MACHC 18-03 A to AA](#) to complete the report.

4. Reports from Observing States and Organizations

4.1 Organization of Eastern Caribbean States (OECS)

The agenda item was not discussed as no representative from the Organization of Eastern Caribbean States was present.

4.2 Observer Countries

A briefing was given under agenda item 3, national reports.

5. Impact of International and Regional bodies in the MACHC region

5.1 Caribbean Marine Atlas (CMA)

The agenda item was not discussed as no representative from the Caribbean Marine Atlas was present.

5.2 Regional Marine Pollution Emergency Information and Training Center for the Wider Caribbean (REMPEITC- Caribe)

The agenda item was not discussed as no representative from the REMPEITC-Caribe was present.

6. Regional Capacity Building (CB)

6.1 Capacity Building Committee Report

CBC Chair, Mr. Jeff Bryant of UKHO, gave a brief presentation and spoke about some specific points as mentioned below:

- They reviewed what CB activities had taken place since the last MACHC meeting in Belem, Brazil.
- With reference to the 2018 CB Work programmed the MACHC CB Coordinator asked for volunteers to host the MBES Processing and Tides & Water levels Workshop for Spanish Speakers. Suriname registered an interest for the first and Cuba wished to host the Tides Workshop during GEOMATICA in 2018.
- Proposed activities for 2019 include Technical Implementation Visits on request, Phase 1 Skills and ENC Production and QA Courses.

- Mexico provided an update on the FOCAHIMECA Project and highlighted that there were four places available on the next (2018) course.
- The MACHC CBC Vice Chair (Brazil) provided a comprehensive report of the Haiti Technical Visit.
- Brazil offered places on their category A and category B Hydrographic Survey courses. Participants would only need to find funding for their flight.
- The meeting noted the continuing challenges of coordinating MACHC CB activity with multiple regional projects and programmers.
- Jeff Bryant ask that COCATRAM to be invited to the next MACHC meeting (ensure that the date for the 2019 meeting does not conflict with the IMO Assembly)

See related document [MACHC 18-06.1](#) to complete the report.

6.2 Capacity Building Opportunities

Mr. Derrick Peyton gave two presentations in this space, one was "Professional Development and Hydrographic Certification" and the other one was "Professional development for hydrographers". He talked about the importance of professional competence. He also mentioned the importance of continuing with the professional development. Continuous professional development helps to know the new technologies, to know the updating of the global regulations, to know the environmental conditions and the patterns that have changed, as well as to know the challenges and the unknown threats. Finally, he offered a wide catalog of content related to the sea.

See related documents [MACHC 18-06.2A](#) and [MACHC 18-06.2B](#) to complete the report.

6.3 Haiti Follow up visit

Commander Paulo Matos presented the results of the follow up visit to Haiti that was part of the Capacity Building Assessment- Technical and High Level Visits. During the visit was found that correlated subjects (mapping) falls under different ministries, Haiti needs to establish discussions so as to do a joint work, there is good cooperation with other institutions. The Assistant Minister expressed during the visit that Haiti needed support with the administration of Aids to Navigation and IALA would be welcome. They are looking to establish a Maritime Training Centre. Haiti needs to designate a national authority to serve as a repository for all hydrographic survey data collected within Haitian waters (no legislation, ≠ institutions collect data). SEMANAH would be the likely candidate to do that for Haiti (CNIGS plays the role for land). There is a need for hydrographic equipment (Coast Guard bases could also provide a stable location for the placement of tide gauges throughout Haiti). CNIGS sometimes does receive hydrographic data that SEMANAH has not received. This information is stored in the database and could be made available via the web as well.

From the political point of view was found that: Haiti government had some misunderstood about the process to become IHO MS. They thought the government needed to ratify the IHO Conventions in Parliament first. IHO Delegation made them aware that this was not necessary, and they just needed to formally submit an official letter (copy provided). All the visited institutions showed interest in the IHO membership. Prime Minister of Haiti showed personal

commitment. SEMANAH felt the Delegations presence was important in highlighting the Hydrography in Haiti and was beneficial in Haiti's formal induction into IHO.

Still under construction: The Government of Haiti to submit the Letter of Adhesion to formally join IHO as a full member. Additionally, they should establish the mechanism to pay the IHO Dues once the finalized rate is calculated based on Haiti's ship tonnage. The Government of Haiti to form a National Hydrographic Committee to coordinate national hydrographic requirements. This committee should include representation from all stakeholder groups. The Government of Haiti to enact a law establishing an organization as the repository for all hydrographic information collected in Haiti. This could also include language requiring a centralized authorization process for conducting hydrographic surveys to reduce redundancy of survey operations.

6.4 Update FOCAHIMECA

Captain Tun Humbert from Mexico, gave a short presentation about the Project of Strengthen Hydrographic Capabilities on Mesoamerica and the Caribbean sea (FOCAHIMECA). He highlighted the initial objectives of the project, which were to integrate joint programs of capacity through workshops and courses on topics of hydrography, identification of sources of financial resources to promote the acquisition or construction of vessels and hydrographic equipment and to organize training events that are scheduled in coordination with International Organizations with hydrographic and maritime competence. The project includes 25 countries from Mesoamerica and the Caribbean region. He enlisted the 2015 and 2016 workshops held as part of the project and that in 2017 six scholars were sponsor to study the hydrography specialty in Veracruz, Mexico, it was also said that there was still two vacancies for the 2018-2019 period.

See related document [MACHC 18-06.4](#) to complete the report.

7. Survey and Risk

7.1 Risk Assessment Group Report

Stephanie Vincent remarked the most important points that arose in the meeting of RA a couple of days before.

See related document [MACHC 18-07.1](#) to complete the report.

7.2 Survey and Risk Papers

Ms. Dawn Seepersad began with an introduction on the importance of navigation in the economic sphere. She spoke about the Risk Assessment of maritime navigation across the Greater Caribbean region (GCR). She remarked the following points when talking about her presentation: First she presented a history of the accidents that occurred in the region, giving some statistics of the damages. She mentioned the importance of the increase in maritime accidents and their consequences. She mentioned the Global Strategies for conducting a risk assessment of maritime navigation and spoke about the use of the LINZ model, the adaptation of this model in the region and its preliminary results. As a final part of her presentation, she mentioned the weakness of the LINZ Risk Model. She concluded that the risk assessment of

maritime navigation across the GCR is necessary and with the use of AIS data such studies are now viable.

See related document [MACHC 18-07.2A](#) to complete the report.

Mr. Derrick Peyton gave a presentation on Bathymetric Measurements of the Rio Indio, Panama, Province of Colón. The Panama National Water Security Plan has the objective of guarantee the fair and equitable access of water to the entire population. The purpose of this project was to carry out bathymetric measurements from the mouth of the Rio Indio to a distance approximately 30 km inland along the river. These data will be useful for assessing the river's environmental flow, navigational capacity, pollution prevention, flood control and other relevant geo-hydrological studies.

See related document [MACHC 18-07.2B](#) to complete the report.

8. DTM and SDI

8.1 MEIP report

Mr. Alberto Costa Neves gave a Report of the MEIP on the absence of the MEIP coordinator. For the report, the recommendations and decisions made in the MACHC 17 were presented. Then, he presented the advances achieved during 2017, such as follow: Since the MACHC17 Meeting in Belem, Brazil the MACHC ENC Password Protected Viewer has been discontinued. Only the Open version of the MACHC ENC Viewer remains today. The Open version of the Viewer currently contains ENC from the following contributing Member States: Brazil, Colombia, Cuba, Mexico, Netherlands, Suriname, United States and Venezuela. He invited other Member States to contribute their ENCs in the future in support of these non-navigational Marine Spatial Data Infrastructure (MSDI) users.

On behalf of Jim Rogers, Mr. Costa Neves thanked everyone for the valuable support to the MEIP over the past year.

See related document [MACHC 18-08.1](#) to complete the report.

8.2 DTM and SDI Papers

In this space Mr. Dagoberto David Viteri gave a presentation on the course of Underwater Geofoms taught in Colombia in August 2017. During the presentation he mentioned the objective of the course was to realize the importance of geology on the bathymetry analysis. He spoke about some examples shown during the course as submarine canyons, underwater landslides and the methods of study used. He also mentioned the impact of this bathymetry maps to prevent submarine cable rupture.

See related document [MACHC 18-08.2](#) to complete the report.

9. Nautical Charts and Publications

9.1 MICC report

The report was given by Commander Paulo Matos. He explained the MICC purpose, target goal and work plan for 2017. There are quarterly calls organized by NOAA, in which there has been great participation, however, the problem still exists to include some offices. During 2017 the efforts have focused at identifying needs and resolving gaps in ENC coverage. A port Analysis evaluation has been conducted and 46 ports were initially identified to need coverage, 43 confirmed and 14 will be addressed within the next 2 years. He explained that a scale of some ENCs was analyzed, determining existing gaps. He also spoke about the Rio Orinoco project and the contribution of MACHC members with the ENC online. At the end, he showed in his presentation the work plan of the MICC for the year 2018.

See related document [MACHC 18-09.1](#) to complete the report.

9.2 Nautical Charts and Publications subjects

Mr. Costa Neves gave a presentation about the Requirement to provide meaningful CATZOC information in ENCs. He explained that SOLAS require that new existing vessels must be fitted with Electronic Chart Display and Information System (ECDIS). The final class of vessels will be required to comply with this requirement no later than the first survey on or after 1 July 2018. Because of this regulation, many SOLAS vessels have chosen to sail completely paperless using only ENCs and ECDIS as the primary reference for safe navigation. The advantages of using digital charts over paper are undisputed, however these advantages are eroded if the data within the ENC does not match or exceed the information included on the corresponding paper charts. HSSC noted that a major source of discontent from mariners in relation with ENC quality indicators was caused by the fact that many Hydrographic Officers were not populating meaningful CATZOC values in their ENCs.

The encoding of the ENC object class M_QUAL for depth areas with CATZOC value 6: zone of confidence "U" (data not assessed), whilst allowable in S-57, gives no information for the mariner to allow for an informed assessment of Under Keel Clearance (UKC). Without a qualitative CATZOC value, mariners are then forced to adopt a worst case scenario when determining their UKC margins and this is resulting in some ports being indicated unnecessarily as out of bounds for their vessels. It has recently been brought to the attention of the ENC Standards Maintenance Working Group (ENCWG) that Port State Control officers are increasingly requiring evidence that navigators have taken the value of CATZOC into account when planning routes. This has a cost implication for the shipping industry with many companies being forced to buy the equivalent paper chart to stop a vessel either being detained or served with a deficiency when inspected. It is therefore of paramount importance that all Hydrographer Officers to review their current ENC production processes and make changes where necessary to encode values of CATZOC for ENCs in accordance with the guidance at IHO publication S-57. ENCs recommended should take in to account those ENCs compiled at a compilation scale of 1:500,000 or larger. DQWG agreed to prepare a proposal to be submitted at the 9th meeting of the HSSC to invite ENC Producers to share their best practices and national guidance. IHO Secretariat suggest that CATZOC composite reports be provide to the conferences and meeting of Regional Hydrographic Commissions.

See related document [MACHC 18-09.2A](#) to complete the report.

Derrick Peyton gave a presentation about Hydrographic Data Management Workflow Management System. He said that the Workflow Management System will support for running HDM production workflows and manage teams to engage in Production, tracking, monitor work progress and collaborate for data exchange. He listed the challenges presented by this workflow. Mr. Peyton presented an organizational model, as well as the roles and activities of each of the members and enlisted the advantages and benefits of its implementation.

See related document [MACHC 18-09.2B](#) to complete the report.

The IC-ENC report was given by Commander Paulo Matos, who spoke about the mission of the IC-ENC, the members and operating offices of IC-ENC, the services provided by the IC-ENC. He emphasized the production support services offered by IC-ENC and showed on the screen the errors database statistic and benefits. He also spoke about the validation of the IC-ENC. Specifically speaking of the MACHC and the IC-ENC, he said that Supports the MICC conference calls, provides six monthly update of approved ENC data to MACHC ENC Online and the RHC ENC overlap report.

See related document [MACHC 18-09.2C](#) to complete the report.

10. MACHC Response to Disasters (IHO resolution 1/2005)

The president gave an introduction about the response to disasters in the MACHC region. He spoke about the phenomena that occurred during the year and invited the members to maintain the necessary attention when required by the affected countries of the Region due to natural phenomena.

Mr. Costa Neves on behalf of Jim Rogers from NGA gave a presentation on the support given during Hurricane Irma and Maria, which affected the east and center of the Caribbean, as well as eastern North America. That region was affected by both hurricanes in the period from August 30 to September 30. The NGA Hurricane Irma and Hurricane Maria websites supported combined US efforts during the crisis. The website also supported the efforts of the other international partners with their humanitarian aid as well. The various products, maps, and data helped responders make more informed decisions.

See related document [MACHC 18-10A](#) to complete the report.

Captain van der Donck presented the support activities carried out after hurricane Irma. They did Survey operations in support of humanitarian relief operations after hurricane Irma. Their main objective was accessibility of port of Philipsburg Saint Maarten. They carried out Hydrographic Surveys with a vessel and a RHB equipped with integrated multi beam system, SSS, SV profiler. The results of the hydrographic survey were: Most frequently used system MBES, SSS less used due to the expeditionary character, ERS provided a stable height reference, Coupling of ERS reference to chart datum via predicted tide, Good SV profile is vital

for small vertical uncertainty and Bathymetry within special order stand. He also remark that the Commission has a limited capacity for disaster response, the role of the Chair of the MACHC is that of a broker of hydrographic demand and that the Chair cannot absorb Member States responsibilities for Diplomatic clearance needed to deploy those hydrographic assets.

See related document [MACHC 18-10B](#) to complete the report.

The delegation of France presented the actions and lessons learned taken on the event of hurricane Irma. It was presented the sea level observation network in the Caribbean, among which is the one of Saint Martin, is operated by the Saint Martin Collectivity with support of SHOM. This station registered the Storm Tide from Irma and helped to evaluate the storm tide forecast. He also talked about Irma`s Impact on Safety of Navigation and the actions taken, such as reclassification of CATZOC on ENC`s of affected areas, creation of CNTARE to inform navigators possible depth changes on the charts affected, as well as notes on paper charts. He presented the survey operations carried out on response to hurricane Irma and the following lessons learned: globally satisfactory surge forecast and real time sea level observation, the needs to improve the resiliency of some tide gages in the area, cartographic action needed to be taken immediately, followed of a response phase to assess damages and a long term plan to recovery phase.

See related document [MACHC 18-10C](#) to complete the report.

The representative of EOMAP offered a presentation related to Satellite Derived Bathymetry and its integration with acoustic surveys. First, he explained the characteristic of satellite data and the information that could be derived from them such as Satellite Derived Bathymetry, sea floor reflectance and sea floor habitat classification. Then he explained how satellite data was used to evaluate impacts on Florida and Cuba. The demonstration showed how Satellite Derived Bathymetry allows rapid assessment of changes in coastline, seafloor cover / benthic habitats and shallow water bathymetry; this method can work remote as rapid assessment tool but can also be integrated in survey concepts with acoustic data. He concluded that, combining SDB and single beam transects allows to provide a validated bathymetric dataset with full seafloor coverage, including very shallow waters, this combination allows to minimize survey work while improving spatial coverage which has a high potential for rapid response surveys; and combining SDB and MBES surveys allows to calibrate and validate SDB in the overlapping regions and results in a validated bathymetric dataset from deep waters to shoreline This combination allows to minimize cost intensive very shallow water surveys, which reduces HSE risks while generating seamless bathymetric datasets from deep waters to shoreline

See related document [MACHC 18-10D](#) to complete the report.

11. Closing Activities

11.1 Any Other Business

None.

11.2 Review actions and decisions

The actions and decisions noted during the meeting of the Commission were presented and corrected if needed. The actions and decisions in these minutes reflect the outcome of this review, bearing in mind that some have been edited for consistency.

11.3 Lessons identified

We must be prepared to take advantage of training opportunities and use them to strengthen our capacities. The MICC is an example of success because of the cooperation that the states provide. Countries should continue to be encouraged to provide information on the areas of trust in electronic charts, but we must also encourage the use of this information by mariners using electronic nautical charts. The region is the passage of strong natural phenomena, such as hurricanes and earthquakes, it is necessary that in the hydrographic field we continue to prepare and develop to be able to face them, although cooperation is necessary, countries must look for and open diplomatic channels so that the communication happens.

11.4 Next Meeting

Dagoberto David Viteri graciously offered to host the 19th MACHC meeting in Cartagena, Colombia, which is one of the main cities of Colombia. The flanking activities (seminar, demonstration and training) will prove an excellent opportunity for Capacity Building activities in the MACHC region. Also, the translation service from English to Spanish and vice versa is an invaluable asset for achieving a successful MACHC meeting. After an inspiring invitation given by Colombia, their offer was unanimously accepted.

Decision

To organize the 19th MACHC in Cartagena, Colombia, taking place from 25 until 30 November.

11.5 Close of Meeting

Rear Admiral Mustafa Iptes and Rear Admiral Enrique Flores Morado spoke warm words of thanks to the Cubans host, who enabled a very successful meeting.

The Chair concluded the conference by wishing everyone a safe trip home and a good beginning of 2018.

The Conference was closed at 12:30.

