



# (Final) **Minutes**

of the

**24<sup>th</sup> Conference**

of

**The Meso American and Caribbean Sea  
Hydrographic Commission  
(MACHC24)**

in

**Paramaribo, Suriname**

between

**Wednesday 13 December**

and

**Friday 15 December 2023**



This document does not act as a verbatim record of the MACHC24 Plenary. It provides an overview of the presentations, reports and a summary of the Actions and Decisions made during the Plenary.

A summary of the Actions and Decisions can be found at Annex A.

The numbering in the Report coincides with the [Agenda](#) items of the MACHC24 Conference.

All documents and presentations are available for viewing and download via the IHO MACHC24 website [here](#).

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# MACHC24 Day One - Wednesday 13 December 2024

**The Royal Ballroom, Torarica Resort, Paramaribo, Suriname**

## 1.0 Welcome from MACHC Chair

MACHC Chair, RAdm Angus Essenhig OBE (UK), welcomed the delegation and congratulated the hosts (Maritime Authority of Suriname) for all their excellent work on bringing all delegates together including the organisation of the icebreaker event on Tuesday 12 December 2023. Chair thanked in advance the industry sponsors, IIC Technologies, Kongsberg, OceanWise, TCarta and Teledyne Geospatial for sponsoring the evening dinner at Lucky Twins restaurant which is to be held on Wednesday 13 December 2023.

Chair welcomed the online participants and explained that the Teams chat function is for technical queries only and that any questions posed to the Plenary will be collated at the end of the Plenary, all answers to then be shared in the New Year.

**Action 1.0: MACHC Secretary to collate all virtual questions asked via Teams and recirculate with answers by 8<sup>th</sup> January 2024.**

Chair encouraged all Member States (MS from hereon in) to participate with energy and enthusiasm to maximise participation over the next few days.

## 1.1 Introductions

MACHC Chair confirmed that 14 of the 15 full members are present and that we therefore have the necessary quorum to hold the MACHC24 conference. Chair confirmed that there were 82 participants in total, of which 57 are attending in person and 25 registered to attend online. Those nations online are: Anguilla, Barbados, Belize, British Virgin Islands, Cayman Islands, Colombia, Mexico and Panama. Chair explained that those participants attending online will gain full presenting rights during the National Report Breakout groups later in the day.

Chair invited all in-person attendees to briefly introduce themselves.

## 1.2 Approval of MACHC24 Agenda and List of Documents

MACHC Chair confirmed that the draft agenda was circulated to all MS on 23 November 2023 for comments, no requests were received by MS and therefore unless told to the contrary now the agenda would be adopted. No further comments were raised by the Plenary and therefore the agenda was adopted.

**Decision 1: MACHC24 Agenda approved and adopted**

MACHC Chair explained that all documents received prior to the Plenary can be found on the [IHO MACHC24](#) website.

## 1.3 Review of MACHC Statutes

MACHC Chair confirmed that the [statutes](#) were circulated to all MS on 11 October 2023 for comments, no feedback was received by MS and so unless raised to the contrary now the statutes would remain unchanged. No requests were received.

Chair made an observation that there are too many actions on the MACHC Actions List. Chair advised that ongoing/continuous actions ('Business As Usual' actions) may be best placed as a separate annex within the statutes. MACHC MS agreed to this as a concept and MACHC Sec will circulate a draft version of the proposed 'Ongoing Actions' annex.

**Action 1.3: MACHC Chair/Sec to amend statutes to incorporate the ongoing/permanent actions where appropriate. Draft to be circulated to MS for further comments by April 2024.**

### 1.4 Matters Arising from MACHC23 Minutes

The Chair confirmed that the MACHC23 Minutes were circulated to MS on 23 November 2023 for comment. The MACHC23 Minutes sent included all previous received feedback and are also available via the IHO MACHC website. Chair asked the Plenary if there were any further adjustments/comments to be made to the MACHC23 Minutes, no further comments made.

**Decision 2: MACHC23 Minutes approved**

### 1.5 Review of Actions List from MACHC23

MACHC Chair invited MACHC Secretary to present on the MACHC List of Actions from MACHC23. MACHC Secretary presented all open actions from the past 3 years and explained to the Plenary that all continuous actions are within a separate list (which will form part of the new Ongoing Actions annex as explained at agenda srl 1.3). The MACHC Actions List was circulated to MS prior to the Plenary on 11 October 2023.

### 1.6 Official Photograph Session

In Person delegation



Virtual delegation



### 2.1 National report and update from Spain (observing state)

Captain Salvador Espinosa Gonzalez-Llanos presented the Spanish National Report Presentation. Presentation link here: [Spain National Report presentation](#)

Comments: IHO Director, Luigi Sinapi, thanked Spain for their participation and re-emphasised the importance of global collaboration and participation.

France asked Spain to provide further information on their other S-1XX product plans. Spain reiterated that in addition to S-101 and S-102 they are also working with SHOM on S-124.

## 2.2 EMODNET Presentation

Mr Leendert Dorst of The Netherlands presented on behalf of the EMODNET Secretariat. Key points from the presentation were:

- EMODNET are funded by the European Commission.
- They have recently (in 2022) expanded into the Caribbean region.
- Member States can contribute via simple surveys which is when meta-data goes into a Common Data Index (CDI). Or alternatively, like the Netherlands do, Member States can contribute via DTM (CPRD composite product) in which there have been 274 DTM product contributions so far.
- Member States can input data, completely free of charge, either via single-beam or multi-beam.
- The latest EMODNET delivery has a grid for European Seas and a separate grid for the Caribbean Sea. Contributions for these came from partners, but once again all Member States can contribute free of charge via their free to use web service.
- New bathymetry grid for the Caribbean was composed by single sources.
- France, the USA and the UK (via OceanWise) in particular have already contributed strong bathymetric data to EMODNET.
- Any data received is sent straight on to DCDB and GEBCO, and vice versa whereby GEBCO send data on to EMODNET to 'fill in' any gaps in data that EMODNET may have.

Comments: USA asked how often the region is updated with the data. Leendert confirmed that dataset updates are shared within regions every 2 years. France made comment that Europe are doing a great job in sharing data and they are hoping that further funding from the European Commission will be provided in the future to allow fresh data surveys. Chair commented that meta-data is incredibly important but also the releasability of said data is just as vital.

## 2.3 IALA Presentation

Ms Gerardine Delanoye presented to the Plenary, with key points focusing on the recent Technical missions within the MACHC region (Venezuela) as well as recent training programmes. IALA video was shown focusing on their Worldwide academy.

Presentation link here: [MACHC24 \(2023\) | IHO](#)

Comments: Guatemala thanked IALA for their continuous support. Venezuela also thanked IALA for their support recently and, in particular, the training provided alongside Colombia and Argentina, they reiterated that they will now continue to support other Spanish speaking nations.

Venezuela asked if a video could be shared to the Plenary. The MACHC Chair asked all MS if they would be happy to be shown the Venezuela IALA video at the start of the Plenary on Thursday 14 December, all MS agreed.

## 3.1 IHO Secretariat Report

Mr Luigi Sinapi, IHO Director, presented to Plenary. Key points were:

- There are now 99 IHO MS, with the Republic of Cabo Verde being the latest addition (and as explained in IHO CL [39/2023](#) and as per [here](#)).
- MACHC MS to support IHO High Level Visits (HLVs) and High-Level Technical Visits (HLTVs).
- Circular Letter (CL) [42/2023](#) will soon be circulated to MS. This CL requests members support and participation of the Fund Generation Project Team.

- Capacity Building (CB) in 2024 will return with normality, any activities not completed in 2024 will not be transferred to the 2025 CB Workplan.
- Within the MACHC region, there were 7 funded CB programmes in 2023 and 2 are planned in 2024.
- In 2023, 3 candidates for the Master of Science in Hydrography applied from the MACHC region. And 1 MACHC candidate applied for the 2023 CAT B Hydrographic Survey Programme. **The 2024/2025 applications for the Master of Science in Hydrography must submit their applications by 31 Jan 2024.**
- In 2024 the Empowering Women in Hydrography (EWH) project have a mentoring programme. IHO CL [40/2023](#) & [41/2023](#) disclosed 3 EWH opportunities, which are offered in collaboration with SHOM, these opportunities will allow three females in hydrography to attend training sessions and also boarding French survey vessels. There are also opportunities on board NOAA vessels which is a 3 year programme.
- MACHC MS encouraged to continue contributions to the CB programme.
- MSI is constantly being reviewed to ensure Safety of Life at Sea, in particular review of SOLAS chapters III and IV are currently taking place and will be circulated to all IHO MS once completed. The WWNWSWG agreed that use of all IMO RMSS should be mandatory.
- The WWNWS is working in collaboration with the CSBC on a C-55 GIS Project.
- IHO SPI 1.3.1 (the ability and capability of MS to meet the requirements and delivery phases of the S100 Implementation Plan) has hit 90% of the overall target.
- The 20<sup>th</sup> anniversary of GEBCO was celebrated at Assembly 3 in Monaco. A new GEBCO strategy and code of conduct is currently under review by the GEBCO Secretariat. This will be available in 2024.
- Seabed2030 has been endorsed as a UN Decade Action.
- The IHO and OECS have undertaken a joint project to explore and identify the links between seabed mapping, ocean economies and ocean health. They will be producing a report on Ocean Economics in 2024 before the UN Ocean Conference in 2025.
- In 2022 the IHO website had a total of 863,322 views and the IHO Secretariat have increased social media presence and participation in regional and global initiatives.
- IHO CL [35/2023](#) confirmed the World Hydrography Day (WHD) 2024 Motto as **"Hydrographic Information - Enhancing Safety and Efficiency in Marine Activities"**. Requested that MS feedback any thoughts/comments on the new motto by 31 December 2023 at the very latest.
- The [International Hydrographic Review \(IHR\)](#) has a new editor, Dr. Patrick Westfield. Deadlines for IHR submissions are end of January for the May edition and end of July for the November edition. MS to consider submitting to the IHR via the MACHC IHR Rep, Mr Nathanael Knapp of the UKHO (Nathanael.knapp@ukho.gov.uk).

**Action 3.1: MACHC MS encouraged to participate in the EWH Project and submit proposals/applications to any relevant training opportunities.**

### 3.2 Outcomes of High Levels Visits (HLVs) in the MACHC region

IHO Director, Mr Luigi Sinapi, presented on the recent HLVs in the Dominican Republic and Jamaica. Key points to note are:

- The two HLVs completed formed part of the 2021 CB Workplan but were delayed due to Covid19.
- The aims of both HLVs were to raise awareness and highlight the importance in Hydrography at the highest level in-country, and to show how hydrography can support economies.



- The Dominican Republic HLV - Highest level governmental discussions were held and it is clear that the HO have the full support (both financially and in terms of resource) from the Dominican Republic government to further enhance their hydrographic capabilities. Such support will hopefully result in new surveying equipment and a greater capacity for the Dominican Republic HO.
- The Jamaican HLV - Once again high-level governmental discussions were had at which the importance of the blue economy in Jamaica was highlighted. The HLV raised awareness of Hydrography and agreements between key stakeholders to further support and build capability within the Jamaican HO.
- Both HLVs were highly successful and highlighted the importance of getting the 'buy-in' from high-level governmental stakeholders.
- IHO Director encouraged MS to consider requesting HLVs (where appropriate).

Comments: Dominican Republic thanked the IHO and Lucy Fieldhouse (CBSC VC) for their support in the HLV and looks forward to sharing future plans with the Plenary in the future.

Jamaica confirmed that on 16 January 2024 they will be taking a new Hydrographic proposal to their government, this proposal will further outline the new equipment and resources the HO requires. Jamaica confirmed that their government are committed to expand the delivery and improve Hydrography for their country.

### 3.3 IHO Council 7 Update

Mr Leendert Dorst of The Netherlands, MACHC Council 7 Representative, provided the Plenary with a brief update from the IHO Council 7 conference which took place in October 2023. Key points of the presentation were:

- One Key Decision from C-7 - The IHO Council endorses the principle that additional funding resources should be considered for setting up sustainable technology and administration infrastructure around S-100, including standard developments.
- The Council also noted the creation of the S-100 infrastructure Project Team (PT) and also an S-100 Security Scheme PT. In addition the Electronic Chart System Project Team (ECSPT) was created.
- It was agreed and that there will be an annual IHO Champion of Hydrography Award.
- Council agreed that the EWH project would be renamed as "Gender Balance in Hydrography". Link to C-7 document [here](#).
- The Council endorsed the principle of exploring more way to ensure IHO events are more inclusive i.e. full hybrid meetings. Fiji presented on this at C-7 and were further supported by Australia, Chile New Zealand, Singapore, UK and USA. The Council tasked the drafting group to conduct a survey to IHO MS requesting further comments on how to foster greater inclusivity.
- All Council recommendations and decisions can be found on the [Council 7 webpage](#).

Presentation link here: [IHO Council 7 Presentation](#)

### 3.4 IRCC15 Update

Miss Lucy Fieldhouse of UKHO presented the key findings and recommendations from the 15<sup>th</sup> IRCC meeting which took place in June 2023. Key points were:

- 47 participants attended IRCC15, of which MACHC representatives were Brazil, France, UK and the USA.
- IRCC15 had a focus on the IHO Assembly 3 recommendations. One of which being Assembly 3 Proposal 3.5 "establish a taskforce to explore the potential merits, structures

and options for alternative fund generation". A scoping team has now been established under the leadership of Dr. John Nyberg of the IHO, this scoping team will investigate potential new sources of funding.

- IRCC endorsed the continuation of online workshops to further enhance collaboration and sharing of knowledge.
- [IHO E-Learning Centre guidelines](#) were approved.
- Subordinate bodies of the IRCC are requested to review the ROP and TOR on gender-inclusive language.
- IRCC approved the [MSDIWG TOR](#) v2.0 and endorsed C-17 Edition 3.0.0.
- RHC Chairs presented to IRCC15, with the main concerns raised surrounding the implementation and delivery of S-100. It was agreed that greater collaboration is required through sharing of data and knowledge through CB activities at regional level.
- All IRCC15 recommendations (which were read out during the MACHC24 Plenary) can be found [here](#).

### 3.5 Maritime Safety Information (MSI)/WWNWS Report

WWNWS Chair, Mr Chris Janus, presented key updates on MSI to the Plenary. Key points raised were:

- NAVAREAs 12, 4 and 5 fall within the MACHC region.
- The WWNWS have undertaken a C55 project in which they have created a central location where MSI capacity of MS can easily be shown and accessed. Contributing MS will be able to visit the IHO MSI Capacity webpage and view specific geographical areas MSI capabilities and also the Points of Contact (POC) within each nation. This service will be available to MS in due course.
- In 2023, Anguilla, British Virgin Islands and United States Virgin Islands were all able to establish MSI POCs - this marks a real success within the MACHC region.
- More coordination is however required in the Bahamas, Costa Rica and Nicaragua as we are currently lacking MSI information including POC.
- The MACHC MSI website can be accessed [here](#).

**Action 3.5: Members and Associate Members to review the [MACHC MSI website](#) and verify their MSI status, verify the national coordinator POC and report any changes to the NAVAREA Coordinator [navsafety@nga.mil](mailto:navsafety@nga.mil) by 1 February 2024.**

Comments: Capacity Building Coordinator, Ms Lucy Fieldhouse, advised the Plenary that there is a funded MSI Course in the 2024 Work Plan for the region.

UK commented that they look forward to welcoming all British Overseas Territories to UKHO in February for further MSI training, at which point the UKHO should hopefully be able to provide POC information for some of those nations still outstanding. The UKHO are, however, delighted that we have been able to establish POCs in Anguilla and BVI.

IALA highlighted the importance of MSI and confirmed that if an Aid to Navigation is not working then MS must report this **immediately** and as soon as known, this is to ensure the reduction of liability.

### 4.0 IHO Strategic Plan update

Mr John Lowell of the USA, and as a SPRWG member, presented the latest updates on the IHO Strategic Plan Review. Key points were:

- The existing plan from 2021-2026 has established 3 goals:



- Goal 1) Evolve the hydrographic support for safety of maritime navigation.  
Goal 2) Increase the use of Hydrographic data to benefit society.  
Goal 3) Participate actively in international initiatives related to the knowledge and the sustainable use of our oceans.
- During the IHO 3<sup>rd</sup> Assembly in May 2023, Decision 8 tasked the IHO Council to develop and review the strategic plan.
  - During Council 7 in October 2023, Decision 38 established a correspondence group which will prepare the next IHO Strategic Plan 2027-2032.
  - MS were encouraged to participate in the SPRWG to ensure their regional perspectives feature in the Strategic Plan.
  - The new Strategic Plan (2027-2032) will look into alternative funding sources to assist with the implementation of S-100.
  - The MACHC region, alongside other RHCs, will be continually informed and updated as to the progress of the new Strategic Plan. MS should be rest assured that the SPRWG and Correspondence Group meet on a regular basis via VTC to progress the drafting of the Strategic Plan forward.

**Action 4.0\_1: MS to provide feedback to the SPRWG on both the existing [Strategic Plan](#) and the future Strategic Plan. MS to identify what is working and what can be improved.**

Comments: Chair suggested to MACHC MS that a MACHC Strategic Plan Project Team is created. No consensus was given during the MACHC24 Plenary, but offline discussions determined a need to develop a set of TORs.

**Action 4.0\_2: MACHC Chair to share initial plans and developments of the MACHC Strategic Plan Project Team in Q1 of 2024.**

## 5.1 PRIMAR Presentation

Mr Hans Lauritzen from PRIMAR provided the Plenary with an overview of PRIMAR and their latest S-100 developments.

Presentation link here: [Lysbilde 1 \(iho.int\)](#)

## 5.2 IC-ENC Presentation

Mr Leendert Dorst as IC-ENC Vice Chair presented to the Plenary on behalf of IC-ENC General Manager, Mr James Harper, who unfortunately was unable to attend due to personal circumstances. The presentation gave the plenary a brief overview of the governance and ICENC updates.

Presentation link here: [PowerPoint Presentation \(iho.int\)](#)

Comments: MACHC Chair encouraged MS to become a member of a RENC (whether that be PRIMAR or ICENC) as it will help with their S-100 development.

## 5.3 IIC Technologies presentation

Mr Alejandro Gerones from IIC Technologies presented to Plenary the latest developments on their S5B and S8B training courses.

Presentation link here: [PowerPoint Presentation \(iho.int\)](#)

## 6.0 National Reports

MACHC Chair talked through the [National Report instructions](#) and provided MS and Associate MS with their [breakout group information](#). The Chair explained that no translation will be

provided in the Breakout Groups and that all virtual MS and Associate MS will now have full presenting rights to enable them to present their national report key messages. The Chairs of the Breakout Group were as follows:

Breakout Group A (Spanish speaking only): Mr Fermin M.Vega Desdin of Cuba

Breakout Group B: Mr John Lowell of the USA

Breakout Group C: RAdm Lauren Kerleguer of France

MS and Associate MS were tasked to present the following:

- 1) Top achievements in the past year
- 2) Top challenges and/or obstructions in the past year
- 3) Top plans that affect the MACHC region

All MS and Associate MS presentations would then be collated by each Breakout Group Chair and the key findings shared back to the Plenary on Thursday 14 December at agenda srl 8.0.

The Plenary broke for the National Report breakout group sessions.

All submitted National Report presentations can be found here: [MACHC24 \(2023\) | IHO](#)

## End of Day One

# MACHC24 Day Two - Thursday 14 December 2024

## The Royal Ballroom, Torarica Resort, Paramaribo, Suriname

MACHC Chair commenced Day Two of the Plenary by thanking the MAS team and the industry sponsors, IIC Technologies, Kongsberg, OceanWise, TCarta and Teledyne Geospatial for their generous hosting and sponsorship of the previous night's event at the Lucky Twins restaurant.

The Plenary was then shown a short video from Venezuela showcasing the IALA mission which took place in November 2023.

Comments: Ms Gerardine Delanoye of IALA thanked Venezuela for sharing with the wider MACHC MS and hoped it would inspire others to sign up for an IALA mission. Outcomes of the mission were meetings with high-level stakeholders to highlight the high levels of compliance within Venezuela. Ms Delanoye reiterated that IALA works with every country and SOLAS is an international business and should not be impacted by geopolitics.

## 7.0 Review of Actions from Day One of MACHC24

MACHC Secretary spoke through all actions from Day One of Plenary. Actions can be found in Annex A.

Comments: Mr Luigi Sinapi, IHO Director, reiterated that action 4.0 required MACHC regional level contributions and highlighted the importance that the direction of the region needs to be conveyed to IRCC and the SPRWG.

## 8.1 National Report Breakout Group A Key findings and messages

Chair or Breakout Group A, Fermin M Vega Desdin of GeoCuba, presented to the Plenary on the key findings from the National Report presentations in Breakout Group A. Key points were:

- More collaboration is required within the region to ensure that all nations are S-100 ready.
- All nations within breakout group A have published New Editions ENC's (S-57).
- The Dominican Republic have not updated their nautical charts but will do so once their port surveys have been completed.
- Challenges within the region include accessing certain hydrographic software. As some nations have sanctions it is proving highly challenging for them to produce ENC's as they simply cannot access the latest software.

Comments: Venezuela reiterated that sanctions against Venezuela and Cuba are problematic and, although they are not the responsibility of the RHC, Venezuela asked nations to reflect on these sanctions to ensure that SOLAS is always achieved and is always at the forefront of all that we do within the region.

## 8.2 National Report Breakout Group B Key findings and messages

Chair of Breakout Group B, John Lowell of the USA, presented to the Plenary on the key findings from the National Report presentations in Breakout Group B. Key points were:

Overarching strengths:

- Cross Agency Governance (PCA) is working well within the region.
- MSDI capabilities is continuously developing within the region.
- Sharing of data is ever increasing.
- There are training opportunities within the region, this includes multi-national training events such as have been held in Suriname.

## Challenges:

- National policy and decision makers are still not fully aware of the importance and value of Hydrographic Services.
- Smaller nations' hydrographic service delivery is often through multi-agency structures which presents challenges due to multiple stakeholders.
- The transition to S-100 is proving to be a challenge for the region, continuous sharing of data and training is vital to ensure that all HOs are S-100 ready.
- Several nations within Breakout Group B mentioned that capacity and ability within their workforce is a big challenge. They need access to better equipment and training in data collection, data processing and data management.

## Opportunities:

- We need to continue to build awareness of hydrography through HLVs and HLTVs. As we've seen through the IHO HLV case studies, such visits are hugely valuable as they involve key policy decision makers.
- There is a need to establish national hydrographic strategies and implementation plans.
- Improve training opportunities within the region, however long-term workforce planning is required for this (particularly with longer courses) to ensure that the HOs still have the workforce and capacity to carry on with their 'day jobs'. There also must be timely notification of such training opportunities to once again ensure that nations are readily prepared within their workforce.
- Sharing of equipment is vital, as smaller nations struggle to access the necessary equipment to gather data. The SWPHC have a dedicated 'Sharing Capabilities Project Team' (SCP) and so the MACHC may wish to consider a similar Project Team whereby we share equipment within the region.

Comments: MACHC Capacity Building Coordinator, Lucy Fieldhouse, confirmed that nations will receive further information on the 2024 NIPPON CAT B Course in early 2024. The course will be due to start in the summer of 2024.

**Action 8.2: John Lowell of the USA to source further guidance from SWPHC on how they work with the NGO to coordinate the SPC project within the region.**

### 8.3 National Report Breakout Group C Key findings and messages

Chair of Breakout Group C, Laurent Kerleguer of France, presented to the Plenary on the key findings from the National Report presentations in Breakout Group C. Unfortunately, there were only three member states present during the Breakout Group. Key points were:

## Overarching strengths:

- Hydrographic surveys and SDB have been completed within the region.
- Some services in charge of hydrography are also responsible for AtoN.
- Members have commissioned hydrographic survey vessels.
- The importance of HLVs and HLTVs to raise awareness at the highest political level.
- Some countries have implemented governance for Maritime Spatial Planning (MSP) and/or MSDI. The IHO visits appear to be a way to strengthen the integration of hydrography in those nations.

## Challenges:

- More surveys, equipment and training (CAT A, CAT B and MSI) is needed, particularly to provide support to Seabed 2030.

- UK and France will be happy to share their findings from the joint experiment of ECDIS S-100 (S-101 and other products).
- S-101 transition is a continuous challenge for the ENC producers of the group.
- Funding of Capacity Building activities at IHO level is having a negative impact on the region.

Collaboration opportunities:

- Several countries have taken the initiative to empower women in hydrography.
- PCA countries carry out beneficial close cooperation in hydrography (CB and surveys).
- France presented the implementation of a platform which will disseminate navigational warnings in S-124 and for mobile apps near the coast.

**Action 8.3: France to share further information on the platform which will disseminate navigation warnings in S-124 via the mobile app.**

## 9.1 OceanWise presentation

Mrs Becky Conway from OceanWise presented to the Plenary on OceanWise's MEMs projects within the MACHC region.

Presentation link here: [PowerPoint Presentation \(iho.int\)](#)

## 9.2 5Cs presentation

Dr Mark Bynoe of 5Cs presented to Plenary on Light Detection and Ranging (LiDAR) and how this can help combat climate change within the region.

Presentation link here: [Beyond COP26 \(iho.int\)](#)

## 10.1 MSDIWG Report

MACHC MSDIWG Chair, Mr Jim Rogers of the USA, presented to the Plenary the latest updates from the MSDIWG which was held on Tuesday 12 December. Included in the presentation was the [2024 MSDI Work Plan](#). Key points raised were:

- Activity within the MACHC region has been a little slow due to personal and professional situations.
- Surveys are an ongoing activity within the region and are constantly being updated, MS are encouraged to regularly review the MSDI website to ensure that the survey data they have is the most accurate/up to date.
- Amy Northern of the UKHO unfortunately stood down from her Vice Chair MSDIWG role earlier this year, the MSDIWG is now actively seeking a new VC.
- MACHC MSDI work in partnership with [EMODNET](#), and will continue to form part of the MSDI Workplan.
- MACHC24 will be Jim's last MACHC conference as he will be standing down. During the Working Group meeting the request for a new Chair was put out to the WG members. It was confirmed that Mr Andy Dippolito will be the new MACHC MSDIWG Chair and will be replacing Jim.

**Action 10.1\_1: Coastal states to review and update the MSDI inventory Survey on the MSDI website ([MACHC MSDI Inventory | Inventario de MACHC MSDI \(google.com\)](#))**

**Action 10.1\_2: Members to consider nominations for Vice Chair role of MSDIWG**

**Action 10.1\_3: Members to continue to consider data principles and standards for the MACHC MSDI efforts. Review the UN GGIM data principles as a starting point for the MMSDIWG**

**Decision 3: MSDI 2024 workplan endorsed**

Comments: MACHC Chair thanked Jim for his continuous support of MSDI within the region and he welcomed Andy into the MSDI Chair position. MACHC Chair also encouraged MS to consider the VC role.

**11.1 EOMAP presentation**

Mr Rainer Ressel from EOMAP presented on EOMAPs Satellite Derived Bathymetry projects.

Presentation link here: [iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-11.1 EOMAP.pdf](https://iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-11.1 EOMAP.pdf)

**11.2 HSR presentation**

Mr Ajay Gupta of Health Solutions Research presented to Plenary on the recent Open FMSDI projects within the MACHC region.

Presentation link here: [iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-11.2 HSR Presentation.pdf](https://iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-11.2 HSR Presentation.pdf)

**12.1 MICCWG Report**

MACHC MICCWG Chair, Mrs Bernice Mahabier of Suriname, presented to the Plenary the latest updates from the MICCWG which was held on Tuesday 12 December. Included in the presentation was the [2024 MICC Work Plan](#). Key points raised were:

- Plenary were shown the number of available ENCS within the region. There has been a steady increase in ENCs over the years, with 1242 ENCs available in 2023. Usage band 5 has had the most increase, with 623 ENCs now available. The other bands are mostly stable.
- There are no updates to INT charts with no pending submissions. There are a total of 51 INT Charts produced and 31 Schemed INT Charts.
- MACHC to coordinate and focus on the following products: S-101, S-102, S-104, S-111, S-124 and S-128 in the MACHC region.
- S-100 Coordinator role still needs to be filled, CL 03/2023 was already sent to MACHC MS and this included the TOR and ROP for the S-100 Coordinator role.
- MACHC MICCWG received responses to WENDWG S-100 Readiness Survey (CL 01/2023) from 9 Member States, including PCAs. The responses received showed that in 2026 and 2027 most countries will produce S-101 and S-102. However, 6 Member states require support for S-101 and S-102, this support will include help in the distribution of the S-1XX products. Member States that had not yet completed the survey were encouraged to submit their responses by the 18 December deadline.
- An S-100 Working Group within the MACHC region needs to be setup, this working group will develop the S100 Roadmap for the region as well as look at S100 Capacity Building opportunities. Each MACHC MS to consider a staff member for the working group.
- IC-ENC have indicated there are S-100 testbeds available via the Netherlands, UK and the USA. These testbeds will be released in January and March 2024.
- The MACHC MICCWG now has a new Vice Chair, Mr Julio Castillo of the USA. Julio Castillo will most likely take over the Chair position at the end of 2024 and so the MACHC MICCWG will then be looking for another VC.



- MACHC Gridded Scheme Update - Gridding has started within the MACHC region but not every Member State is planning to change schemes. Potential benefits to gridding are to eliminate any overlays, standardise data and S-100 product compatibility. However, there are clearly some challenges from the gridded scheme, which include resource limitations, dual fuel, changing international agreements and that there is no universally accepted grid.

Comments: UK plan to change the gridded scheme for both S-57 and S-100, this will benefit the user and will enable multiple S-100 product types to have consistent limits. The coverage will not change but the scheme itself will change (to the new gridded scheme).

**Action 12.1\_1: Members to review TOR and ROP for the S-100 Coordinator role (via MICC CL 03/2023)**

**Action 12.1\_2: Members to submit candidates for the S-100 Coordinator role after review of the role TOR and ROP**

**Action 12.1\_3: Consider nominations for the MICCWG INT Chart Coordinator and MICCWG Vice Chair roles**

**Action 12.1\_4: Members to setup a S100WG as soon as possible. MS are expected to nominate a representative for the S-100WG**

**Action 12.1\_5: MS to update the planned chart schemes in usage bands 1-4 as per MICC CL 04/2023 previously sent.**

**Decision 4.0: MICC 2024 workplan endorsed.**

### **13.1 MSIWG Report**

MACHC MSIWG Chair, Mr Chris Janus of USA, presented to the Plenary the latest updates from the MSIWG which was held on Tuesday 12 December. Included in the presentation was the [2024-MSI WorkPlan](#). Key points raised were:

- The TOR were approved during the first MACHC MSIWG meeting on Tuesday 12 December.
- The IHO/IMO/WMO MSI Manual will come into force from 1 January 2025 and this will provide guidance to navigation warning providers on how they create navigational warnings, this will in turn help to facilitate to transition to S-124.
- NAVDAT update - During the IHO and WMO meeting discussions were had whether the NAVDAT would eventually replace NAVTEX and if so, what would the timeframe be for this.
- There is now a Space Operations Working Group with 13 NAVAREAs being represented within the group. The reason for this Space Operations Working Group is because there has been an increase in space navigation and space launches, particularly within NAVAREA 4. The next steps for the working group are to geospatially display the data via an easy to access platform. The platform will show S-124 warnings for space operators and will provide a detailed analysis of how seafarers operate in areas in which they may encounter space hazards. The Working Group will also provide educational outreach to new space providers to ensure they are fully aware of what is expected of them to ensure safety of navigation within the areas they are working within.
- The majority of nations within the MACHC have MSI capacity and POC to support C-55. A GIS platform has been created which will enable coastal states to share their MSI POC

information and also showcase their MSI capacity and capabilities. This platform will ensure that all MSI information is stored in one location.

- Caribe Wave presented to the MSIWG on Tues 12 December on their Tsunami Readiness programmes which aims to build resilience within communities at risk to Tsunamis. Its purpose is to practice and evaluate tsunami procedures and enhance public awareness and preparedness within the Member States and Territories.
- In June 2023, during HSSC15, the S-124 Project Team approved the S-124 V1.0 (test standard)
- The S-124 Project Team will be presenting V2.0 of the S-124 Operational Standard to HSSC16 in June 2024.
- Members are encouraged to participate in the S-124 Project Team whereby you can assist in the development of test cases, validation check expansions, data classification and encoding guides and also help develop the MACHC specific S-124 Implementation plan.
- The Chair of the overall MSIWG has now been confirmed as Mr Timothy 'Ed' Stacy of the USA. However, the Vice Chair position is still vacant. If members want to become a member of the overall MSIWG, members to email [timothy.e.stacy@nga.mil](mailto:timothy.e.stacy@nga.mil).

**Action 13.1: MSIWG Chair to report whether a NAVAREA should issue a Nav Warning for a Sairdrone when it is operating within its NAVAREA.**

**Decision 5.0: MSI 2024 workplan endorsed.**

### 14.1 TCarta presentation

Mr Kyle Goodrich of TCarta presented to the Plenary on the Integration of Satellite and Marine Based Hydrographic Survey Methods within the MACHC region.

Presentation link here: [iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-14.1\\_TCarta\\_Presentation.pdf](https://iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-14.1_TCarta_Presentation.pdf)

### 14.2 Fugro presentation

Due to a flight cancellation, Mr Jose Martinez Diaz from Fugro presented to the Plenary online, the presentation was focused on RAMMS Bathymetry LiDAR.

Presentation link here: [iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-14.2\\_Fugro\\_Presentation.pdf](https://iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-14.2_Fugro_Presentation.pdf)

### 15.1 Capacity Building Committee Report

MACHC CB Coordinator Chair, Miss Lucy Fieldhouse of UK, presented to the Plenary the latest updates from the Capacity Building Committee meeting held on Tuesday 12 December. Included in the presentation was the [2024-2026 Work Plan](#). Key points raised were:

- There has been an increase in the number of IHO funded CB activities completed but there are still outstanding activities within the workplan. These outstanding activities will be carried forward into the 2024 workplan.
- Empowering Women in Hydrography - There is now a dedicated Empowering Women in Hydrography webpage and the EWH projects/activities were shared with the Plenary. Circular Letters 40 & 41/2023 outline the EWH opportunities that SHOM will be providing. Members are encouraged to review these letters and consider staff members for the opportunities. During the Committee meeting the members also heard from Ms Juliane Affonso of Brazil who recently completed a 1-month secondment with IC-ENC based out of the UKHO. Julio Castillo outlined the opportunities provided by NOAA in support of the EWH Project - three women per year to have hands on hydrographic experience within

a NOAA survey vessel where they will gain an understanding of NOAA's missions and programmes, software's and in house tools. There will be a circular letter in early 2024 with a call for nominations.

- The C-55 Project Team was tasked to review C-55 and identify recommendations so that it better supports reporting for SPIs and ease of use. Further developments throughout the year will be made and shared with MS accordingly. It is expected that future C-55 reporting will be based on a GIS solution, this technical solution will need to be aligned with S-100 development.
- The eLearning Project Team - The guidelines developed by the team for the running of the eLearning Platform were endorsed at IRCC15. A CL called for participants on the eLearning Centre Steering Committee. There remains a vacancy for General Manager of the eLearning Platform who will have general oversight of the system including curriculum content, this is a significant role and until this role has been filled the platform will be developed in phases.
- It was proposed and agreed during IHO Assembly 3 that the CB budget would be set at 60,000EUR for the next 3 years. CB demand far outweighs this, with demand equating to approx 578000EUR, and so during Assembly it was agreed that a Taskforce would be established which will explore the potential merits, structures, options for alternative fund generation to support Capacity Building and other IHO initiatives. Circular Letter 42 requested IHO Member States to consider staff members to become members of this Taskforce.
- Programmes sponsored via the Republic of Korea and the NIPPON Foundation are still available, with the Master of Science Programme in Hydrographic Science now open to applications for nominations for the 12<sup>th</sup> Course which will run from August 2024 to August 2025. IHO CL 27/2023 refers.
- In 2024 the following new activities have confirmed funding: High Level Visit to Colombia, and Seminar on Raising Awareness of Hydrography which will precede MACHC25 in December 2024.
- In 2023, Mr Diego Fernando Mendez Porta of Guatemala completed the Master of Science Programme in Hydrographic Science. Mr Walther Danilo Quiroz Gonzalez of Guatemala also completed the CAT B Nautical Cartography Programme (sponsored by ROK); and Mrs Shari Bowen-Robinson of Jamaica recently completed the NIPPON Foundation GEOMAC course at the UKHO alongside Mrs Nayivis Lopez Ortega from Cuba.

**Action 15.1\_1: MS to support EWH project via further funding or in kind donations**

**Action 15.1\_2: MS to report capacity building opportunities to CB Coordinator**

**Action 15.1\_3: MS to consider contributing eLearning material to the IHO eLearning centre and raise awareness of any available eLearning courses that could be signposted to.**

**Decision 6.0: CB 2024-2026 Work Plan endorsed.**

## **16.1 MACHC Seabed2030/CSB Report**

MACHC Seabed2030 Coordinator, Mr Diego Billings of Jamaica, presented to the Plenary the latest updates from the Seabed 2030/CSB Working Group which was held on Tuesday 12 December. Included in the presentation was the [Seabed 2030/CSB 2024 Work Plan](#). Key points raised were:

- In 2022, 25% of the ocean has been mapped with direct observation. Seabed 2030 is an accelerator for GEBCO as when the initiative first started only 6% of the ocean floor was mapped to an adequate resolution.

- In 2022, Seabed 2030 completed the following activities: UN Decade Project led by IOCaribe, GEBCO SCRUM MSI Workshop in Cartagena.
- In 2023, Seabed2030 Workshop was completed in Cartagena, this was in collaboration with South & West Pacific Seabed 2030 Regional Centre.
- Recent Data Contribution highlights include SDB data from the Bahamas (provided by TCarta and EOMAP).
- In 2023, approx. 27% of the MACHC region's Seabed has been mapped. There is a steady increase in data coverage within the region and over the last 3 years there has been an approximate increase in data of 7%.
- Crowdsourced Bathymetry (CSB) - The CSBWG met in January 2023 and the WG consists of representatives from 18 member states (France, Jamaica, Mexico, Netherlands, UK and USA within the MACHC region). All MACHC MS encouraged to participate in the CSBWG.
- All coastal states are requested to indicate their position on the provision of CSB data from ships within waters subject to their jurisdiction into the public domain. So far, 34 coastal states have replied positively. Outstanding nations in the region are requested to reply to CL 01/2020 and CL 21/2020 as soon as possible.
- The IHO DCDB have implemented a geographic filter for incoming data which takes into account coastal countries' positions on the distribution of CSB collected in their areas of jurisdiction.
- The DCDB accepts CSB contributions through a network of 'trusted nodes' e.g. organizations, companies, universities serving as data liaisons between mariners and the DCDB. Trusted nodes may supply data logging equipment, provide technical support to vessels and be responsible for data transfer directly to the DCDB.

**Action 16.1\_1: MS to indicate their position on the provision of CSB data via replying to [IHO CL 21/2020](#).**

**Action 16.1\_2: MS to respond with CSB status to [IRCC CL 01/2020](#).**

**Decision 7.0: Seabed2030 2024 Work Plan endorsed.**

### **17.1 Teledyne Caris presentation**

Mr Juan Carballini from Teledyne presented their latest S-100 developments.

Presentation link here: [iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-17.1 Teledyne Presentation.pdf](https://iho.int/uploads/user/Inter-Regional/Coordination/RHC/MACHC/MACHC24/MACHC24-17.1%20Teledyne%20Presentation.pdf)

### **17.2 Kongsberg presentation**

Mr Leonardo Figueroa from Kongsberg presented the latest updates from the company in 2023.

Presentation link here: [PowerPoint Presentation \(iho.int\)](#)

## **End of Day Two**

# MACHC24 Day Three - Friday 15 December 2024

The Banquet Room, Torarica Resort, Paramaribo, Suriname

## 18.0 Review of Actions from Day Two

MACHC Secretary spoke through all actions from Day Two of Plenary. Actions can be found in Annex A.

## 19.1 UKHO presentation on ECS Project and Paper Chart Update

Mr Nathanael Knapp presented about the UK Hydrographic Office's latest plans for the future of paper charts and about the need to improve Electronic Charts System (ECS) standards and the new ECS project team that has been set-up to investigate:

- UKHO will remain in paper chart production whilst safe navigation depends on it.
- Decision to continue with paper chart production taken following consultation and feedback from wide range of maritime stakeholders.
- An IHO ECS Project Team has been established with the objective to:
  - Identify and prioritise ECS navigation requirements;
  - Analyse their impacts on current IHO hydrographic standards;
  - Develop a set of recommendations/issues to be addressed by existing IHO bodies, external organisations, and Member States.
- The current focus of the IHO ECS PT is information gathering. A survey is currently being prepared which will be issued soon. MS and recipients were encouraged to respond to the survey and actively contribute to the IHO ECS PT.

Presentation link here: [https://iho.int/uploads/user/Inter-Regional%20Coordination/RHC/MACHC/MACHC24/MACHC24-19.1\\_UKHO%20ECS%20Presentation.pdf](https://iho.int/uploads/user/Inter-Regional%20Coordination/RHC/MACHC/MACHC24/MACHC24-19.1_UKHO%20ECS%20Presentation.pdf)

**Action 19.0\_1: MS to respond to ECS survey once issued**

**Action 19.0\_2: MS to contribute staff and intellectual effort to ECS Project Team**

**Action 19.0\_3: MACHC representative to update DIHMAR on ECS Project Team progress**

Comments: USA said that they already have regulations but that these are generally not well enforced. It would also be a huge undertaking to enforce regulations below ECDIS.

Netherlands said that focus should be on IMO regulations (i.e. SOLAS). They have chosen not to participate directly in the ECS PT, but will follow it via IC-ENC.

France agreed that there is a need to establish a sustainable future for paper charts. France also thought that the need to improve ECS standards is valid, but this should be based on existing ENCs.

Antigua and Barbuda stated their support for the initiative and proposed that this should be taken forward at an IMO level via the regional IMO Heads of Maritime Administration meeting (known as DIHMAR). Antigua and Barbuda (as DIHMAR Chair) and Suriname agreed to support UK by facilitating the inclusion of this in Agenda for DIHMAR 3 in 2024.

## 19.2 GeoCuba presentation

Mr Fermin M.Vega Desdin of Cuba presented the capabilities and services provided by GeoCuba.

Presentation link here: [https://iho.int/uploads/user/Inter-Regional%20Coordination/RHC/MACHC/MACHC24/MACHC24-19.3\\_GeoCuba%20Presentation.pdf](https://iho.int/uploads/user/Inter-Regional%20Coordination/RHC/MACHC/MACHC24/MACHC24-19.3_GeoCuba%20Presentation.pdf)

## 20.1 Review of Actions from Day Three

MACHC Secretary spoke through all actions from Day Three of Plenary. Actions can be found in Annex A.

## 20.2 Any Other Business (AOB)

No comments made.

## 20.3 Next MACHC Conference (MACHC25)

No volunteers/nominations to host the next MACHC conference (MACHC25) were received. A further 'call' for nominations will be sent to MACHC MS and Associate MS in the New Year.

**Decision 8.0: MACHC25 confirmed for week commencing 2<sup>nd</sup> December 2024. Location TBC.**

## 21.0 Closing remarks

Closing remarks and thanks were given by:

MACHC Chair, RAdm Angus Essenhigh OBE

MACHC Vice Chair, Mrs Bernice Mahabier

IHO Director, Mr Luigi Sinapi

# End of Day Three