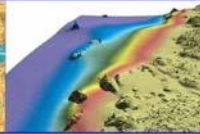
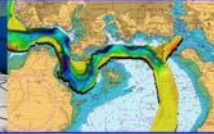




INTERNATIONAL HYDROGRAPHIC BULLETIN



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January - December 2017

JANUARY

7TH MEETING OF THE WORLDWIDE ENC DATABASE (WEND) WORKING GROUP (WENDWG)

Washington DC, USA, 31 January – 2 February

The seventh meeting of the Worldwide ENC Database Working Group (WENDWG) took place in Washington, District of Columbia, USA, hosted by the Office of Coast Survey of the National Oceanic and Atmospheric Administration (NOAA), from 31 January to 2 February, in conjunction with the 2nd joint meeting of the Regional ENC Coordinating Centres (RENC), IC-ENC and PRIMAR. The meeting was chaired by Mr Jamie McMichael-Phillips (United Kingdom). Twenty-one delegates from 12 Member States (Argentina, Brazil, Canada, China, Finland, France, Italy, Japan, Norway, Turkey, United Kingdom, United States) representing eleven Regional Hydrographic Commissions (ARHC, BSHC, EAHC, EAHC, MACHC, MBSHC, NHC, NSHC, SAIHC, SWAtHC, USCHC), the Chairs of the IC ENC Steering Committee and PRIMAR Advisory Board and the directors of both RENC attended the meeting. Director Mustafa Iptes and Assistant Director Yves Guillam (Secretary) represented the IHO Secretariat.



Participants to the 7th WENDWG Meeting.

The meeting noted that most of the decisions and actions arising from the 6th meeting of the WENDWG were implemented or complete. As a result, the meeting concentrated on the main work items of the WENDWG 2016-17 programme of work, and the actions assigned to the WENDWG by the Inter-Regional Coordination Committee (IRCC) at its 8th meeting in 2016.

The WENDWG agreed that there was a need to draw the attention of the 1st Session of the IHO Assembly (IHO-A1) to some important issues. An ad hoc drafting group prepared the key messages that could be included in the oral presentation of the Chair of the IRCC. This included drawing attention to the steps that should be taken by RHCs and ENC producers to minimise overlapping ENC coverage, particularly where it could impact on the safety of navigation. The status of ENC coverage was reviewed based on a report provided by the United Kingdom, taking note also of the report prepared by the IHO for the 4th Session of the IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 4/25/5). The meeting acknowledged the set of actions and related issues raised from the 8th meeting of the

Hydrographic Services and Standards Committee (HSSC-8) regarding the use of the ENC/ECDIS Data Presentation and Performance Check for Ships by port State Control authorities. The WENDWG participants, including the RENCs, agreed that the “List of Hydrographic Office Contact Person Regarding ENC Overlap Issues” which is available on the IHO web site, was not used anymore and should be withdrawn.

Two other ad hoc drafting groups were established during the meeting; the first one to prepare the draft of a new IHO Resolution seeking to limit overlapping ENC coverage issues when safety of navigation is at stake. This new proposed IHO Resolution aims to clarify and consolidate the procedure which already exists in the *Guidelines for the Implementation of the WEND Principles*. It will be submitted to IRCC9 in June 2017 for endorsement. The second ad hoc drafting group was established to establish procedures and guidelines for RENCs to assess the “significance” of any particular instance of overlapping ENC coverage, to develop further the possibility of exchanging ENC *data* between RENCs for harmonization purposes, and quality control in general. The WENDWG agreed that the new procedures and guidelines should also incorporate the relevant parts of the ENC data flow diagram (see IHO WENDWG Repository web page) and embrace the so-called “exclusive” ENCs that are not currently distributed through the RENCs.

The representatives of the RHCs reported on the progress made on ENC Scheming in their charting region. They were informed by the IHO Secretariat that IHO Member States will soon be requested to approve a new Edition of S-11 Part A - *Guidance for the Preparation and the Maintenance of International (INT) Charts and ENC Schemes*. The inclusion of ENC schemes in the guidance is intended to reinforce the need to implement ENC scheming at the regional level. The situation varies significantly from one region to another and it is currently unclear if there is a common understanding on this matter, notwithstanding the fact that the establishment of regional ENC schemes has been designated by the IRCC and monitored over the last five years through the IHO performance indicators associated with the IHO Strategic Plan. These performance indicators were discussed as part of preparation of the next IHO Assembly. A recommendation was made to focus the indicators on ENC usage bands 1 to 3 in future, since bands 4 to 6 are usually confined to national rather than regional ENC coverage.

Some ENC producer countries, who already include Temporary & Preliminary Notices to Mariners (T&P NtMs) in their ENC updates, argued that decisions made at IRCC-8 relating to the Admiralty Information Overlay service provided by the UKHO as part of its AVCS service, had not been implemented yet. The UKHO agreed to report on this issue within a month.

The WENDWG agreed to recommend the continuation of its activities to the IRCC and that the next meeting of the WENDWG should be held back-to-back with the next Joint RENC meeting in March 2018 in Buenos Aires, Argentina.

Further information concerning the meeting is available on the IHO web site at:

www.iho.int > Committees & WG > WENDWG > WENDWG-7.

Reference documents are also available at:

www.iho.int > Committees & WG > WENDWG > WENDWG Repository.

7TH E-NAVIGATION UNDERWAY INTERNATIONAL CONFERENCE

MS Pearl Seaways, at Sea, 31 January - 2 February

The 7th e-Navigation Underway International Conference was held from 31 January to 2 February on board the ferry M/S *Pearl Seaways*, sailing from Copenhagen, Denmark to Oslo, Norway and back to Copenhagen. Jointly organized by the Danish Maritime Authority (DMA) and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), the conference was also supported by the IHO, BIMCO, the Comité International Radio-Maritime (CIRM) and the International Chamber of Shipping (ICS). It was attended by about 150 delegates from 28 countries, representing national maritime administrations, hydrographic offices (Norway, Republic of Korea, Sweden, Ukraine, United Kingdom, United States), industry and international organizations (BIMCO, CIRM, IALA, IHO, International Association of Independent Tanker Owners, International Harbour Masters' Association, International Maritime Pilots' Association).

The primary focus of the conference was on showcasing the development of practical e-Navigation solutions and test beds. The conference was jointly opened by Mr Francis Zachariae, Secretary-General of IALA, Mr Troels Blicher Danielsen, Deputy Director General of DMA, and Mr Kwang-youl Park, Director General of the Ministry of Ocean and Fisheries, Republic of Korea. The keynote address was delivered by Mr Michael Bergmann, president of the CIRM. Director Gilles Bessero, representing the IHO, presented the IHO perspective on e-navigation progress and trends in relation to the development and implementation of the concept of Maritime Service Portfolios (MSPs). He highlighted the issues that need to be addressed to transition from the current structure of hydrographic services inherited from the paper chart environment to an e-Navigation friendly structure and he outlined the anticipated role of the IMO-IHO Harmonization Group on Data Modelling (HGDM). The progress in developing S-100 to underpin e-Navigation was presented by Ms Julia Powell, United States, Chair of the IHO S-100 Working Group.



Participants to the 7th e-Navigation Underway Conference

As a result of about 30 presentations and related discussions that took place over the three days of the Conference, five highlights were identified:

- There is a need to identify reliable business-cases showing how e-navigation addresses the interests of various maritime stakeholders;
- At least one national authority is considering e-navigation to address autonomous shipping in coastal waters;
- Cyber-security continues to be an issue that need to be addressed;
- The list of 16 MSPs in the e-navigation Strategy Implementation Plan requires further refinement and should be considered by all organizations involved including the IMO-IHO HGDM;
- The maritime cloud requires a sound business case including cyber security, ownership and governance.



Gilles Bessero and Julia Powell addressing the Conference

All the presentations delivered during the conference are available at: <http://www.iala-aism.org/products-projects/e-navigation/e-nav-underway/international-e-navigation-underway-2017/>.

The next e-Navigation Underway International Conference is tentatively planned from 26 to 28 January 2018. Two regional editions are scheduled respectively in Jeju, Republic of Korea, from 18 to 20 June 2017 for the Asia-Pacific region and in Saint-John's, Newfoundland, Canada, from 16 to 18 October 2017 for North America.

8TH MEETING OF THE MARINE SPATIAL DATA INFRASTRUCTURES WORKING GROUP (MSDIWG)

Vancouver, Canada, 31 January – 2 February

Marine Spatial Data Infrastructures Working Group

The Marine Spatial Data Infrastructures Working Group (MSDIWG) was created in 2008 to support IHO work programme activities related to Spatial Data Infrastructures (SDI) and/or Marine Spatial Data Infrastructures (MSDI), to monitor SDI activities and trends and to promote the use of IHO standards and Member States' marine data in SDI activities. The MSDIWG is also tasked to liaise with other relevant bodies to increase awareness of marine spatial data, to identify ways for the IHO to contribute to the development of SDI/MSDI in support of Member States, to identify possible solutions to any significant technical issues related to interoperability between maritime and land based inputs to SDI and to identify any IHO capacity building requirements related to MSDI.

The eighth meeting of the MSDIWG took place in Vancouver, Canada, hosted by the Canadian Hydrographic Service (CHS), from 31 January to 2 February, preceded by a meeting of the Open Geospatial Consortium (OGC) Marine Domain Working Group (Marine DWG). The meeting was chaired by Mr Jens Peter Hartmann (Denmark). Thirteen delegates from nine Member States (Argentina, Brazil, Canada, Denmark, Germany, Malaysia, Republic of Korea, United Kingdom and United States) and eight observers and expert contributors from the OGC, Global Spatial Data Infrastructure Association (GSDI), Teledyne Caris, ESRI, IIC Technologies and OceanWise attended the meeting. Assistant Director Alberto Costa Neves represented the IHO Secretariat.



Participants to the 8th MSDIWG Meeting

The meeting was informed of the conclusions drawn from the CHS survey on Member States' MSDIs, and in particular those observations related to the preparation of metadata and to governance. The meeting then considered the best ways to help Member States and Regional Hydrographic Commissions (RHCs) to further develop their MSDIs. The meeting also agreed to seek funding for the development of a Common Operating Picture in collaboration with the OGC and GSDI. The need for more in-depth feedback from Member States through the RHCs was considered fundamental for the MSDIWG to identify the means to support the objectives of the IHO, to provide examples of the benefits of MSDI and the drawbacks of not having such a system in the near future.

Participants were informed of progress on the draft edition 2.0.0 of IHO Publication C-17 - *Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices* and considered ways of keeping it up to date and relevant. The meeting invited the OGC Marine DWG to consider preparing a conceptual model for MSDI as well as a concept note addressing the impact of the "cloud" concept.

Member States' national reports informed the meeting on the developments related to MSDI pilot projects intended to demonstrate the feasibility of a national MSDI, how best capture consistent metadata, data formats and visualization, the development of applications that support different users, the organization of a consistent policy and governance framework and the development of national geoportals and web services. Most participants highlighted an increase in awareness of the value of geospatial data and the trend towards data-centric services, rather than focusing on products; and the need to educate national agencies on how best to organize their databases.

The meeting was informed of the developments of regional MSDI, and in particular the one covering the Arctic region. This reflected the contribution of Member States to the establishment of a regional MSDI using open data and standards for interoperability of dependable geospatial data for the benefit of the wider community. Participants were informed about the Ecological Marine Units (EMU), smart telemetry as part of an MSDI, the use of variable resolution surfaces for improving efficiency when handling big data, and other developments in the Baltic and North Seas, EMODnet, and the marine cadaster.

An updated MSDIWG Work Plan for 2018-2020 was produced to reflect the actions and tasks agreed at the meeting that are required to achieve the objectives set for the MSDIWG by the IRCC. The meeting was also informed of the improvements to the IHO website with an updated GIS layer to display examples of SDI and MSDI around the world.

OGC Marine Domain Working Group

The 8th meeting of the MSDIWG was preceded by a meeting of the OGC Marine DWG (30 January) attended by over 22 people and hosted by the CHS and the OGC. In accordance with its usual practice in the OGC, the Marine DWG has three Co-Chairs (Teledyne Caris, USA-NGA and UKHO) who together provide a strong hydrographic background. The meeting was informed of the recently established Memorandum of Understanding between the IHO and the OGC and its key elements that stress coordination in relation to common standards, best practices, lessons learned, future developments and engagement with stakeholders.

The meeting considered the content of a possible conceptual model for an MSDI, the types of OGC services that might be useful in the exchange of hydrographic and seafloor survey data such as chart features and high resolution bathymetric coverage through standardized interfaces, the mechanisms for identifying parameters that would benefit from further standardization and the creation of the relevant Standards Working Groups to address the gaps in the existing OGC, IHO and International Association of Oil and Gas Producers (IOGP) standards baseline.

Participants discussed the potential for interoperability pilots and testbeds that would help to define the workflows and infrastructure necessary to ensure that marine geospatial data can be used for purposes other than navigation. The presentations delivered during the meeting will be made available by the OGC in an open website and the link will be available in the MSDIWG webpages.

The next meeting of the MSDIWG, to be associated with an MSDI Forum and a meeting of the OGC Marine DWG, will take place in January or February 2018, in Brazil (exact venue and dates to be decided). When available, information concerning the meeting will be posted on the IHO web site at: www.iho.int → Committees & WG → MSDIWG → MSDIWG8 (and → MSDI Open Forum).

Reference documents are also available at: www.iho.int > Committees & WG > MSDIWG > Body of Knowledge.

FEBRUARY

4TH MEETING OF THE CROWD-SOURCED BATHYMETRY WORKING GROUP

**Center for Coastal and Ocean Mapping & NOAA/UNH Joint Hydrographic Center,
University of New Hampshire, Durham, United States, 13-14 February**

The Crowd-Sourced Bathymetry Working Group (CSBWG) has been tasked by the Inter-Regional Coordination Committee (IRCC) to develop an IHO publication that provides guidance on the collection and use of Crowd-Sourced Bathymetry (CSB). This document will provide guidelines and advice on various considerations that should be taken into account when collecting CSB data for inclusion in the global bathymetric data set which is maintained in the IHO Data Centre for Digital Bathymetry (DCDB).



The participants of the 4th meeting of the CSBWG between sessions

The working group held its fourth meeting at the Center for Coastal and Ocean Mapping & NOAA/UNH Joint Hydrographic Center University of New Hampshire, Durham, United States on 13 and 14 February. The Chair of the CSBWG, Ms Jennifer Jencks (USA, Director of the DCDB), chaired the meeting which was attended by representatives from six Member States (Canada, Italy, Nigeria, Norway, Philippines and USA), and observers and expert contributors from GMATEK, Inc./World Maritime University and Sea-ID. Secretary-General Robert Ward and Assistant Director David Wyatt represented the IHO Secretariat.

The CSBWG received verbal reports from the coordinators of its correspondence groups that had been tasked with drafting specific sections of the Guidelines. During the meeting the various draft sections of the guidelines were developed further. An initial draft version of the Guidelines will be made available to targeted stakeholders for comment prior to the presentation of a first draft to the IRCC at its 9th meeting in Paramaribo, Suriname, in June 2017. Subject to the agreement of the IRCC, this will be followed by a formal public consultation period leading to the submission of a final proposed text to the 10th meeting of the IRCC (IRCC10) in 2018, consideration by the IHO Council at its 2nd meeting and subsequent adoption by the IHO Member States towards the end of 2018.

It was agreed that a further meeting of the working group would be beneficial to review the results of the formal consultation period between IRCC9 and IRCC10. It is therefore planned to hold a fifth meeting of the CSBWG in Monaco in late November or early December 2017. This may be followed by a meeting of the Atlantic Seabed Mapping International Working Group, which is actively engaged in crowd-sourced bathymetry initiatives to help improve knowledge of the Atlantic seafloor.

The report of the meeting and the supporting papers will be available from the CSBWG section of the IHO web site: www.iho.int > [Committees & WG](#) > [IRCC](#) > [CSBWG](#)

7TH MEETING OF THE ATLANTIC SEABED MAPPING INTERNATIONAL WORKING GROUP (ASMIWG)

Durham, New Hampshire, USA, 15-16 February

The Atlantic Seabed Mapping International Working Group (ASMIWG) was established in 2015 to address seabed mapping issues related to the implementation of the *Galway Statement* of 2013 through which the European Union (EU), the United States of America (USA) and Canada agreed to join forces on Atlantic Ocean Research.



7th meeting of ASMIWG in session

The 7th meeting of the ASMIWG was held at the University of New Hampshire in Durham, New Hampshire, USA, on 15-16 February. The meeting was chaired by Mr Stephen Locke, Director, Geological Survey of Canada – Atlantic, with representatives from the EU, Canada and USA as well as representatives from the European Commission (EC) and Non-Governmental Organizations. Assistant Director David Wyatt represented the IHO and the IHO-IOC General Bathymetric Chart of the Oceans (GEBCO) Project.

The ASMIWG reviewed progress since its previous meeting and the direction and guidance provided from the Canada-EU-US Tripartite Implementation Committee. The meeting received information on the recent appointment of a Research Vessel Coordinator, who will liaise with the various research ship managers to identify data gathering opportunities outside their dedicated operational commitments as well as coordinating places in ships for students to gain sea going experience managing survey systems during the transits.

A brief update was received from the NOAA/National Centers for Environmental Information (NCEI) on progress with developments to the IHO Data Centre for Digital Bathymetry (DCDB) and the North Atlantic Data Viewer, including work being planned in the next four months. The briefing also detailed work undertaken to identify suitable 400 square mile project areas in the North Atlantic and the categories used in their selection. This discussion highlighted new datasets from Portugal covering its Continental Shelf extension submissions and which will be made available in due course.

Update briefs were provided on the activities of the Ocean Literacy WG, the European Marine Observation and Data Network (EMODnet), International Research Ship Operators (IRSO), IHO Crowd-Sourced Bathymetry Working Group, the GEBCO Seabed 2030 Project, “A Trans-Atlantic assessment and deep-water ecosystem-based spatial management plan for Europe” (ATLAS) and “Deep-sea Sponge Grounds Ecosystems of the North Atlantic” (SponGES), Atlantic Seafloor Partnership for Integrated Research and Exploration (ASPIRE), Atlantic Canyons Undersea Mapping Expeditions (ACUMEN) and Atlantic Ocean Research Alliance Coordination and Support Action (AORA CSA).

The meeting highlighted the 400th anniversary in 2020 of the *Mayflower* crossing the Atlantic from Plymouth to the “*new world*”, as an opportunity to raise the profile of the Galway initiative and articulate the importance and scientific value of increasing knowledge of North Atlantic for society. It was also agreed that the UN Ocean Conference in June and the Our Ocean Conference in Malta in October would also provide opportunities to raise the profile of the project.

The participants reviewed the draft report on activities to date, proposals for future actions and the identification of pilot project areas, in preparation for submission to the Tripartite Implementation Committee. As part of the review, a list of reasons were developed as to why mapping the North Atlantic was important; the list developed by GEBCO in the draft Seabed 2030 roadmap was used as the basis for the list.

During one of the breaks, the participants were given a tour of the Center for Coastal and Ocean Mapping/Joint Hydrographic Center (CCOM/JHC) facilities, including a demonstration of the Telepresence Console position, from where live observation and discussion can be conducted with missions underway anywhere at sea.



CCOM/JHC Telepresence Console position

Participants were briefed on the developments of the AORA website (<http://www.atlanticresource.org>) in support of the ASMIWG activities and the Share Point application for use by ASMIWG members to share documents and into which all meeting documents and presentations have been placed.

The Implementation Committee confirmed that the next, and eighth, meeting of the ASMIWG would take place in Halifax, Canada, in June or July 2017.

PREPARATORY MEETING FOR THE UN OCEAN CONFERENCE 2017 UN Headquarters, New York, USA, 15-16 February



The Secretary-General represented the IHO at the Preparatory Meeting for the United Nations (UN) Conference to Support the Implementation of Sustainable Development Goal (SDG) 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (The Ocean Conference). The Ocean Conference will be convened at the UN Headquarters in New York, USA from 5 to 9 June 2017, coinciding with World Oceans Day, observed annually on 8 June. The overarching theme of the Conference will be - *Our oceans, our future: partnering for the implementation of Sustainable Development Goal 14.*

The preparatory meeting comprised a large number of UN Member States together with an equally significant number of other intergovernmental and international organizations and stakeholder representatives. The discussions in the preparatory meeting centred on the proposed topics to be discussed at the Ocean Conference and the anticipated “Call for Action” that will result from the Conference.



Opening Session of the Preparatory Meeting at the UNHQ

Many speakers stressed the need for greater inter-organizational cooperation to obtain more scientific data to support progress towards achieving SDG-14. The significant lack of bathymetric data for the seas, oceans and coastal waters was acknowledged both in the meeting and in several side events as one of the parameters that require improvement. The need for more capacity building in order that small island and developing coastal States could better contribute to and govern the sustainable use of the seas and oceans was another pervasive topic.

The participants to the preparatory meeting were encouraged to support side events and activities during the Ocean Conference in June. The IHO Secretariat is investigating opportunities to promote the activities of the Organization that directly support the achievement of SDG-14, including its role in the GEBCO programme, the operation of the Data Centre for Digital Bathymetry (DCDB), the growing role of HO's in Marine Spatial Data Infrastructures (MSDI), and the IHO Capacity Building Programme, as well as the growing links that the IHO Secretariat maintains with other intergovernmental and international organizations and stakeholders.

7TH MEETING OF THE ROPME SEA AREA HYDROGRAPHIC COMMISSION

Muscat, Oman, 20-22 February

The 7th meeting of the ROPME (Regional Organization for the Protection of the Marine Environment) Sea Area Hydrographic Commission (RSAHC) was held in Muscat, Oman, from 20 to 22 February. The meeting was opened by Mqaddam Juma al Busaidi, Acting Director of the National Hydrographic Office of Oman, in the presence of Ameer Harib bin Rashid al Rahbi, Director General Operations and Plans in the Royal Navy of Oman. Representatives from RSAHC Member States Bahrain, Islamic Republic of Iran, Oman, Pakistan, Qatar and Saudi Arabia attended the meeting with Associate Members attending from France, United Kingdom and USA and observers from a number of organizations and authorities together with several representatives from industry. Director Mustafa Iptes and Assistant Director David Wyatt represented the IHO Secretariat.



Director Iptes addresses delegates at the opening session of RSAHC7

The meeting received national reports from Member and Associate Member States and the IHO Secretariat after which the meeting received reports on the IHO-IOC GEBCO project and on Worldwide ENC Data Base (WEND) issues. Delegates were encouraged to provide regular updates to the IHO Yearbook (P-5) and IHO publication C-55 - *Status of Hydrographic Surveying and Nautical Charting Worldwide*. Details of regional INT Chart and

electronic navigational chart (ENC) coverage were discussed as well as encouragement to access the INTtoGIS web portal in order to manage INT chart and ENC coverage across the region. The NAVAREA IX Coordinator (Pakistan) provided an up-date on issues relating to the World-Wide Navigational Warning Service (WWNWS) and outcomes from related IMO meetings were reviewed. Director Iptes briefed the Commission on current IHO issues and activities as well as forthcoming session of the IHO Assembly.

The meeting included presentations from industry representatives that highlighted technologies and training opportunities available to the region. Industry representatives were keen to emphasise their willingness to engage with the RSAHC and its members to assist the development of hydrographic and cartographic capability within the region. These presentations were followed by presentations from the regional Capacity Building (CB) Coordinator. All the presentations generated considerable debate on various issues and regional requirements. A comprehensive list of CB requirements was developed for submission to the IHO Capacity Building Sub Committee (CBSC) that will meet in June. Presentations were also given on the Indian Ocean Tsunami Warning and Mitigation System and the IHO-IOC GEBCO Project, both of which supported the request that Member States contribute to the IHO-IOC GEBCO programme through the provision of shallow water bathymetric data to the IHO Data Centre for Digital Bathymetry (DCDB).

The participants reviewed the Commission statutes and agreed to amend the statutes to include a fixed term for the role of Chair with the Vice-Chair automatically taking over as Chair after each meeting. Pakistan was elected as the next Chair of the Commission with the Islamic Republic of Iran being elected as Vice-Chair. The Commission also agreed that the Chair (Pakistan) and Vice-Chair (Iran) would occupy the two seats on the IHO Council allocated to the RSAHC for the period April 2017 to April 2020. The Middle East Navigation Aids Service (MENAS) and Bahrain offered to investigate hosting the 8th meeting of the RSAHC, with a view to holding it in in late February 2019, preceded by a one-day meeting of the INT Chart Coordination Working Group.



Participants to the RSAHC7 Meeting

4TH MEETING OF THE STEERING COMMITTEE OF THE EAST ASIA HYDROGRAPHIC COMMISSION

Tokyo, Japan, 22-24 February



EAST ASIA HYDROGRAPHIC COMMISSION

The 4th meeting of the Steering Committee of the East Asia Hydrographic Commission (EAHC) was held in Tokyo, Japan from 22 to 24 February, hosted by the Japan Hydrographic and Oceanographic Department (JHOD) of the Japan Coast Guard and chaired by the Hydrographer of Malaysia Rear Admiral Dato' FADZILAH bin mohd Salleh. The EAHC Steering Committee meets annually between the triennial meetings of the EAHC to monitor progress in the region and to provide an annual forum for the region's Hydrographers to meet.



Representatives from all but one EAHC Member State attended the meeting. The following IHO Member States were present: Brunei Darussalam, China, Indonesia, Japan, Republic of Korea (RoK), Malaysia, Philippines, Singapore, Thailand and Viet Nam. The Democratic People's Republic of Korea was not represented. Cambodia and Timor Leste were represented at the meeting as Observer States together with the Chair of the GEBCO Guiding Committee (GGC). IHO Secretary-General Robert Ward attended as an invited observer from the Secretariat of the IHO.

The meeting received progress reports on the Training and Research Development Center (TRDC), based at the Korea Hydrographic and Oceanographic Agency, in Busan, RoK, established by the Commission to deliver its regional Capacity Building Programme (see: <http://trdc.eahc.asia/>). The Committee endorsed the 2018 work programme and funding bids to be forwarded to the IHO Capacity Building Sub Committee. Secretary-General Ward provided a report of IHO activities of relevance to the Commission and the Chair of the GGC provided a briefing on the IHO-IOC GEBCO project and its involvement with crowd-sourcing for data.

The Commission discussed progress and involvement in Marine Spatial Data Infrastructures and established two working groups to provide further advice and information to be presented at the next meeting of the Commission.

Details of regional electronic navigational chart (ENC) coverage were discussed including the need to temporarily suspend the distribution of the co-produced navigation purpose 2 (small scale) ENC coverage in the South China Sea until such time as an agreed geographical naming policy could be determined. It was agreed that China - Hong Kong would provide the East Asia Regional ENC Coordinating Centre (EA-RECC) to carry out harmonisation, quality assurance and updating of the EAHC co-produced ENCs, to arrange the distribution and sale of ENCs of the EA-RECC and other regional ENCs with chart distributors, and to be the ENC coordinator for INTERNATIONAL charting region K.

During the meeting, the participants agreed that Malaysia and Indonesia will occupy the two seats on the IHO Council allocated to the EAHC for the period April 2017 to April 2020.

The 5th meeting of the EAHC Steering Committee will be held in China in early March 2018.

Prior to the 4th meeting of the EAHC Steering Committee, the Secretary-General took the opportunity to call on the Commandant of the Japan Coast Guard and to engage in informal discussion with the Executive Director of the Maritime Affairs Programmes of the Nippon Foundation in relation to the continuing and very successful IHO capacity building activities that are funded by the Nippon Foundation.

**7TH MEETING OF THE IHO-ROK
PROGRAMME MANAGEMENT BOARD
Busan, Republic of Korea, 27-28 February**

The 7th meeting of the IHO - Republic of Korea (ROK) Programme Management Board (PMB) was hosted by the Korea Hydrographic and Oceanographic Agency (KHOA) in Busan, Republic of Korea (ROK) from 27 to 28 February. The meeting was opened by Mr Chaeho Lim, Director of the Nautical Chart Division of the KHOA. The IHO was represented by Director Mustafa Iptes and Assistant Director Alberto Costa Neves (Secretary). Mr Maxim Van Norden, Coordinator of the Hydrographic Science Masters Degree Programme at the University of Southern Mississippi (USM), USA and relevant KHOA Staff also attended the meeting as invited contributors. The meeting was chaired by Director Iptes.

The PMB was established under the IHO - ROK Memorandum of Understanding (MoU) to identify directions for improving hydrography and nautical cartography worldwide through the capacity building activities funded by the ROK and to manage the IHO-ROK programme of technical cooperation. The meeting agreed on the need to revise the current MoU in order to update and adjust some of its provisions.

The meeting reviewed the progress and achievements of the various training and education activities sponsored by the ROK. The annual financial contribution from the ROK forms a significant part of the Capacity Building (CB) Fund used to support the annual IHO CB Work Programme (CBWP). Since its inception the ROK contribution has supported education programmes in hydrography and cartography, training for trainers' (TFT) courses, seminars and short courses on hydrographic surveys, ENC quality assurance, marine spatial data infrastructures, law of the sea, and tides and water levels, amongst others.

The success of the TFT courses in the East Asia Hydrographic Commission (EAHC) region will be reported by KHOA during the next CBSC15 meeting with a view to investigating the use of this concept in other Regional Hydrographic Commissions (RHCs). TFT courses have provided training capability in Hydrography and Cartography, helping to multiply knowledge in the EAHC.

The PMB considered the management aspects of supporting trainees on the Category "A" Hydrography Programme at the USM and the Category "B" Nautical Cartography Programme at the KHOA in order to effectively deliver high level education and training to participants from developing countries. During the meeting the selection board for the 2017-2018 edition of the Category "A" Programme was established and selected one candidate from Romania, subject to final acceptance by the USM.

The meeting was pleased to acknowledge the increasing number of qualified candidates that were nominated for the Category "A" Programme this year and regret that the available funds were insufficient to support more than one student. The meeting also discussed ways to help ROK training alumni continuing their professional development and engaging in IHO projects, including the GEBCO Science Day meeting to be held in the ROK in November 2017. The alumni might also investigate how to take advantage of social media to create an environment of cooperation between them.

The PMB was informed that the financial contribution from the ROK to support CB activities in 2017 will, exceptionally, be less than in previous years due to an unusual requirement to support the Korean Seconded Officer at the IHO Secretariat in 2017. The ROK also expressed its interest in continuing the support to further develop the Capacity Building Management System (CBMS) by working with the IHO Secretariat.

The meeting was also briefed on CB activities being conducted by the East Asia Hydrographic Commission Technical, Research and Development Center (TRDC) and its developments of e-learning to better assist the international hydrographic community. The use of e-learning is a strategic objective for the EAHC/TRDC.

The next, and eighth meeting of the PMB will take place in Monaco on 27-28 February 2018.



Participants to the PMB7

**MEETINGS OF THE WMO/IOC-JCOMM - EXPERT TEAM
ON MARITIME SAFETY SERVICES (ETMSS-V)
AND
EXPERT TEAM ON SEA ICE (ETSI-VI)**

Finnish Meteorological Institute, Helsinki, Finland, 28 February-3 March

The Expert Teams on Maritime Safety Services (ETMSS) and Sea Ice (ETSI) are part of the Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM) of the World Meteorological Organization (WMO) and the UNESCO Intergovernmental Oceanographic Commission (IOC). The ETMSS participates in, and provides the meteorological input to the IHO World-Wide Navigational Warning Service Sub-Committee (WWNWS-SC).



Mr Jussi Kaurola addressing the delegates at the opening session of the joint JCOMM ETMSS and ETSI meeting

The ETSI is the responsible body for the WMO operational sea ice standards, including WMO Sea Ice nomenclature. It is the formal body responsible for the Ice Objects Catalogue together with the WMO Secretariat as co-manager of the catalogue responsible for operational sea ice standards. ETMSS meets approximately every four years and the ETSI approximately every three years. Both bodies held their 5th and 6th meetings, respectively, at the Finnish Meteorological Institute, Helsinki, Finland, from 28 February to 3 March. The IHO was represented by Assistant Director David Wyatt.

Delegates from the WMO Secretariat, Australia, Argentina, Brazil, Canada, Chile, China, Denmark, Finland, France, Germany, Greece, Italy, Japan, Norway, Russian Federation, UK, USA, International Mobile Satellite Organization (IMSO), Inmarsat, Iridium and the Chair of the JCOMM Services Coordination Group, were welcomed by Mr Jussi Kaurola, Director Weather and Safety at the Finnish Meteorological Institute (FMI). The meetings were chaired by Mr Neal Moody (National Manager, Marine Weather Services, Australian Bureau of Meteorology) and Dr Vasily Smolyanitsky (Arctic and Antarctic Research Institute (AARI) and State Oceanographic Institute (GOIN) of Roshydromet, Russian Federation).

The joint meeting received reports and presentations from Services and Forecast Systems Programme Area (SFSPA) of JCOMM, the ETMSS Chair, the ETSI Chair, the International Maritime Organization (IMO) delivered by a representative of the WMO Secretariat, the IHO, the IMSO, Inmarsat and Iridium. The IHO presentation, delivered by Assistant Director Wyatt, provided background information on the IHO and the role of its WWNWS-SC in providing the standards that underpin the provision of Maritime Safety Information. The IHO representative also gave a presentation on the IHO capacity building programme framework with a focus on the delivery of MSI training courses. It was confirmed that representatives from the IMO/WMO World-Wide Met-Ocean Information and Warning Service (WWMIWS) could witness the MSI training courses as a way of identifying how to establish a similar training structure as well as identify opportunities to harmonize the delivery of training.

The meeting reviewed the status of relevant WMO and joint IMO/IHO/WMO documentation and agreed upon the actions necessary to bring the WMO documentation into closer alignment with the joint documentation, particularly in relation to the update cycle for the relevant IMO Resolutions. The meeting endorsed the need for continuing the close cooperation between the WMO and the IHO through their ETMSS and WWNWS-SC. In particular it was agreed to move

forward with the dialogue between NAV and MET AREA Coordinators, which began at the collocated meeting in Wellington, New Zealand, in 2014.



The participants of the JCOMM ETMSS and ETSI meeting

In addition to more general comments on relevant activities, the IHO representative was able to provide significant contribution during the discussions on progress with the developments of S-100-based product specifications: S-411 – *Ice Information* – and S-412 – *Weather Overlay* – for which comprehensive presentations were provided by Lieutenant Joseph Phillips (NOAA, USA) and Jürgen Holfort (Head of the German Ice Service, Bundesamt für Seeschifffahrt und Hydrographie (BSH)). Relevant

issues to be addressed at the forthcoming fourth session of the IMO Sub-Committee for Navigation, Communications and Search and Rescue (NCSR4), in particular the Modernization Plan for the Global Maritime Distress and Safety System (GMDSS) and the process of the recognition of new mobile satellite service providers of the GMDSS, were also discussed.

It was agreed that a second collocated WWNWS-SC meeting and WWMIWS workshop would be of significant benefit to develop further the discussions and dialogue between the NAV and MET Areas Coordinators. The WWNWS10 meeting, which is anticipated to be held in Monaco in 2018, was identified as a suitable opportunity.

The meetings concluded with the development of a list of actions to be completed in preparation for the 5th Session of JCOMM to be held in Indonesia in October 2017.

All presentations and documents will be available from the ETMSS-5 (http://www.jcomm.info/index.php?option=com_oe&task=viewEventRecord&eventID=1951) and ETSI-6 (http://www.jcomm.info/index.php?option=com_oe&task=viewEventRecord&eventID=1952) pages of the JCOMM web site.

MARCH

11TH CONFERENCE OF THE SOUTH-WEST ATLANTIC HYDROGRAPHIC COMMISSION (SWATHC)

Niteroi, Brazil, 6-7 March

The 11th Conference of the South-West Atlantic Hydrographic Commission (SWAtHC) was hosted by the Brazilian Hydrographic Service (Directorate of Hydrography and Navigation (DHN)), on 6 and 7 March. Eighteen delegates attended the meeting, chaired by Vice-Admiral Marcos Sampaio Olsen, Director of the DHN. All three IHO Member States of the Commission, Argentina, Brazil and Uruguay, were represented together with the Associate Member, Paraguay, and the Observer State, Bolivia. Two industry stakeholders (IMS and Kongsberg Maritime) participated in the meeting as Observers. The IHO Secretariat was represented by Assistant Director Alberto Costa Neves.

Argentina, Brazil, Uruguay, Paraguay and Bolivia reported on their national activities since the 10th Conference. Argentina reported the status of surveys, the development of its Maritime Spatial Data Infrastructure (MSDI) and its insertion in the national SDI, and its contributions to the GEBCO project. Brazil highlighted its contributions to capacity building provided to international students from developing nations, the modernization of its hydrographic survey fleet, the new cartographic plan based on risk assessment, the implementation of satellite derived bathymetry plan, and the progress of its MSDI. Brazil also reported on progress as the host of the IC-ENC branch covering South America which is now fully operational.



Participants in the 11th SWAtHC Conference



The 3 400 km of the Paraguay-Parana Waterway serving the five States in the region, linking the heart of the continent to the Atlantic Ocean

Uruguay reported progress in conducting surveys, cooperation with Argentina for a new INTernational Chart 2010 and the need to overcome the shortcomings in the national legal framework that restrict the provision of data beyond that contained in nautical charts. Paraguay provided an update on surveying and charting its waterways with the support from SWAtHC Members, its needs for capacity building assistance and work in support of the Paraguay-Parana Waterway Committee. Paraguay also requested support to progress the implementation of the recommendations provided by the Technical Visit report conducted in 2014. Bolivia reported on the surveys conducted by the National Hydrographic Service in its inland waters, including the highest navigable lake in the world, Lake Titicaca, surveyed in cooperation with Peru, and the access routes to the Amazon and to the Paraguay-Parana waterways, surveyed in cooperation with Brazil.

Assistant Director Costa Neves provided a briefing on the main IHO activities of relevance to the Commission including the changes arising from the entry into force of the amendments to the Convention

on the IHO, the status of the membership and the possibilities for Bolivia and Paraguay to join the IHO, the developments in the geospatial information infrastructure in the Secretariat, the status and possibilities of the IHO Capacity Building Programme, the progress on crowd-sourced bathymetry and the developments at the IHO Data Centre for Digital Bathymetry, the preparation for the 1st Session of the IHO Assembly and the establishment of the IHO Council.

Uruguay, as Chair of the SWAtHC Planning Committee, reported on the intersessional work conducted through the Committee, addressing notably the maintenance of the regional INT Chart and ENC schemes and the progress achieved so far. The production reached 77% of the INT Chart schema and 80% of the ENC schema. The Commission noted that there are no significant overlapping ENC cells and no charted areas designated as CATZOC “unassessed”. The Commission also endorsed the procedure for quality assurance of INT Charts as agreed by IRCC (Action IRCC7/27).

The Planning Committee updated the Commission on the engagement of the Members of the SWAtHC with the Inland ENC Harmonization Group (IEHG) and the plans to hold its next meeting in Brazil in October 2017. The Commission considered the work plan of the Committee for the next intersessional period focusing on the continuation of chart production, the use of risk assessment for prioritization of surveys and charts and the implementation of Capacity Building activities funded by the IHO CB Fund and self-funded.

The Commission received reports on the work of the Inter-Regional Coordination Committee, Capacity Building Sub-Committee, Worldwide ENC Database Working Group and Hydrographic Services and Standards Committee and considered the impacts for the region. The industry representatives briefed the Commission on taking full advantages of multi-beam data acquisition and how static and dynamic data streams impact the way the maritime community interact with charts.

Argentina presented a proposal for the development of a geoportal for the SWAtHC to support the work of the Commission which approved the development of a prototype before its formal adoption. The geoportal will also host the inland navigable waterways due to the paramount importance for all the nations in the region. Brazil informed the Commission on developments in e-Navigation and its impact to the hydrographic services.

The Statutes of the Commission were amended to reflect the changes to the Convention on the IHO, to incorporate the inland waterways flowing into the South-West Atlantic and to enable Paraguay and Bolivia to join the SWAtHC as full members following their accession to the IHO. Paraguay and Bolivia are considering becoming Members of the IHO. Both are already Members of the IMO and parties to the SOLAS Convention. Paraguay was an IHO Member from 1967 to 1969.

During the meeting participants had the opportunity to visit the new Brazilian Hydrographic Vessel *Vital de Oliveira*, built and operated by a national consortium formed by the Navy, the Ministry of Science and Technology, Universities and Industry. *Vital de Oliveira* is scheduled to call in Monaco during the 1st Session of the IHO Assembly in April.

The next Conference of the SWAtHC will take place in April 2018 in Montevideo, Uruguay, the exact date to be decided. In accordance with the statutes of the Commission, the chairmanship will be transferred to Uruguay within 45 days from the closing of the Conference.

All the documents of the meeting are posted at the SWAtHC section of the IHO website.

61ST MEETING OF THE NORDIC HYDROGRAPHIC COMMISSION Elsinore, Denmark, 6-8 March



View from Kronberg Castle, Elsinore

The 61st Meeting of the Nordic Hydrographic Commission (NHC) was hosted in Elsinore, Denmark from 6 to 8 March by the National Geodata Agency of Denmark. The Agency is responsible for hydrographic surveys and charting in Denmark, the Faroe Islands and Greenland as well as for the implementation of the Danish Marine Spatial Data Infrastructure.

Ms Pia Dahl Højgaard, Director-General of the National Geodata Agency of

Denmark, opened and chaired the beginning of the meeting before a requirement to attend to other business. The meeting was then chaired by her deputies. All NHC Members were represented: Denmark, Finland, Iceland, Norway and Sweden. Secretary-General Ward represented the IHO Secretariat as an observer.

The meeting reviewed hydrographic progress in the region and the various developments affecting the region and agreed on a number of actions to further enhance cooperation and the development of hydrographic services among the members. These are described in the records of the meeting posted on the IHO website at: www.iho.int → *committees & WGs* → *RHCs*.

As well as the presentation of national reports on progress and notable developments in the past year, discussion points included hydrographic office involvement in Maritime Spatial Data Infrastructures, the future of paper chart production, the regional perspective and inputs to the forthcoming IHO Assembly, and cooperation in sharing training opportunities between Hydrographic Offices in the region.

At the end of the meeting Sweden took up the Chair of the NHC. The 62nd meeting of the NHC will be held in Sweden from 10 to 11 April 2018.



61st Meeting of the Nordic Hydrographic Commission

4TH SESSION OF THE IMO SUB-COMMITTEE ON NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE

London, United Kingdom, 6–10 March

The Sub-Committee on Navigation, Communications and Search and Rescue (NCSR) is a subordinate body of the Maritime Safety Committee (MSC) of the International Maritime Organization (IMO). Its functions are to consider technical and operational matters related to the obligations of Governments and operational measures related to safety of navigation. These include: hydrographic and meteorological services, ships' routing, ship reporting systems, aids to navigation, radio-navigation systems, vessel traffic services, and pilotage; operational requirements and guidelines relating to navigational safety and associated issues, such as regulations for the prevention of collisions and groundings, bridge procedures, voyage planning, avoidance of dangerous situations, places of refuge (including maritime assistance services and relevant aspects of maritime security), carriage requirements, performance standards and operational guidelines for the use of shipborne navigational equipment and other navigational requirements; obligations of Governments and operational measures related to the Global Maritime Distress and Safety System (GMDSS), development and maintenance of the global Search and Rescue (SAR) Plan and the Long Range Identification and Tracking (LRIT) system; operational requirements and guidelines relating to radiocommunications and search and rescue, and, in co-operation with the International Civil Aviation Organization (ICAO), the harmonization of aeronautical and maritime search and rescue procedures; carriage requirements, performance standards and operational guidelines for the use of shipborne radiocommunications and search and rescue equipment; and liaison with the International Telecommunication Union (ITU) on maritime radiocommunication matters.

The 4th session of the Sub-Committee (NCSR4) was held at the IMO Headquarters in London, United Kingdom from 6 to 10 March. The IHO was represented by Director Gilles Bessero, Assistant Director David Wyatt, Mr Peter Doherty, the Chair of the World-Wide Navigational Warning Service Sub-Committee (WWNWS-SC), and Mr Christopher Janus, Branch Chief, NGA Maritime Watch - NAVAREA IV/XII. Several representatives of Hydrographic Offices also attended the meeting as a member of their national delegation.



NCSR4 approved two routing measures and two areas to be avoided, which will be forwarded to the MSC for adoption at its 98th session (MSC98) in June 2017.

The Sub-Committee received reports from the Chair of the IMO NAVTEX Panel, including details of proposed new NAVTEX stations which had recently become operational and stations which had become or remained non-operational. The Chair of the IHO WWNWS-SC reported on the activities of the sub-committee, highlighting the on-going maintenance of the documentation related to the provision of Maritime Safety Information (MSI) and the capacity building training provided to the Meso American and Caribbean Hydrographic Commission and the South West Pacific Hydrographic Commission regions. The Sub-Committee approved a revision to the in-force notification period for MSI documents after approval by the MSC. Amendments to IMO resolutions A.705(17), as amended, (*Promulgation of Maritime Safety Information*), A.706(17), as amended, (*World-Wide Navigational Warning Service*) and A.1051(27) (*IMO/WMO World-Wide Met-Ocean Information and Warning Service – Guidance Document*) as well as MSC circulars MSC.1/Circ.1310/Rev.1 (*Joint IMO/IHO/WMO Manual on Maritime Safety Information*), MSC.1/Circ.1364/Rev.1 (*Revised International SafetyNET Manual*) and MSC.1/Circ.1403/Rev.1 (*Revised NAVTEX Manual*) will come into force on 1 January 2018 following MSC approval or at another date as decided by the MSC. The Sub-Committee noted that amendments to the GMDSS Master Plan had been distributed in GMDSS/Circ.19 and Administrations were encouraged to check their national data for accuracy.



Director Bessero in the plenary at NSCR 4

In support of the work item on the development of *Guidelines for the harmonized display of navigation information received via communications equipment and guidelines and criteria for ship reporting systems* the IHO submitted a document on the contribution of the S-100 framework to the harmonized display of navigation information. As invited at MSC96, the IHO submitted a document proposing the activation of the IMO/IHO Harmonization Group on Data

Modelling (HGDM) to assist in developing guidance on the definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs) in support of the implementation of e-navigation. The Sub-Committee referred the proposal to activate the group to the MSC, inviting interested parties to submit proposals related to the proposed work plan and to a possible revision of the HGDM terms of reference for further consideration at MSC98.

The Sub-Committee considered the progress of several outputs related to the display of navigation-related information. The Sub-Committee approved the draft amendments to resolutions MSC.252(83) (*Additional modules to the Revised performance standards for Integrated Navigation Systems (INS)*), MSC.306(87) (*Revised performance standards for Enhanced Group Calling (EGC) Equipment*) and MSC.148(77) (*Revised performance standards for Narrow-Band Direct-Printing Telegraph equipment for the reception of Navigational and Meteorological Warnings and Urgent Information to Ships (NAVTEX)*) addressing the interconnection of NAVTEX and Inmarsat SafetyNET receivers and their display on Integrated Navigation Display Systems, and invited the MSC to adopt them. A draft MSC circular on *Guidelines for Position, Navigation and Timing data processing* was finalized and endorsed with a view to approval by the MSC. The Sub-Committee agreed to the establishment of a Correspondence Group under the coordination of Norway to continue the development of Guidelines for the harmonized display of navigation information received via communications equipment. The Sub-Committee agreed to propose to the MSC not to develop further at this stage the proposed additional modules to the Revised Performance Standards for Integrated Navigation Systems (INS) relating to the harmonization of bridge design and display of information.

The Sub-Committee endorsed the draft Modernization Plan of the GMDSS for approval of the MSC. The NSCR endorsed the proposal for a new output on the revision of SOLAS Chapter III and IV for the Modernization of the GMDSS and agreed the terms of reference of the Correspondence Group to continue the modernization of the GMDSS under the coordination of the United States, in anticipation of the Committee's approval.

The IHO reported on the monitoring of ECDIS issues and Electronic Navigational Chart (ENC) coverage. The IHO confirmed the withdrawal of the previous versions of the IHO standards for ECDIS on 31 August 2017 as agreed at NSCR3 in 2016, following the entry into force of the revised set of IHO standards in August 2015. It was noted that some items of MSC.1/Circ.1503 (*ECDIS – Guidance for good practice*) related in particular to operating anomalies will no longer be relevant for up-to-date ECDIS and the Sub-Committee was invited to consider revising the Circular in connection with the possible development of port State Control guidelines on ECDIS. Noting the relevant considerations by the IMO Sub-Committee on Implementation of IMO Instruments (III) and the revision of the section of the Circular on ECDIS training by the IMO Sub-Committee on Human Element, Training and Watchkeeping, the Sub-Committee decided not to take further actions.

Mr Ringo Lakeman, Netherlands, and Mr Nigel Clifford, New Zealand, were re-elected as Chair and Vice-Chair, respectively, of the Sub-Committee for its fifth session scheduled to be held at the IMO Headquarters from 19 to 23 February 2018.

2ND MEETING OF THE UNDER KEEL CLEARANCE MANAGEMENT INFORMATION PROJECT TEAM (UKCMPT)

Genoa, Italy, 13-14 March

The Italian Hydrographic Institute hosted the 2nd meeting of the Under Keel Clearance Management Information Project Team (UKCMPT) in Genoa, Italy from 13 to 14 March. The UKCMPT is a subsidiary of the S-100 Working Group and is tasked with the development of the S-129 Product Specification for Under Keel Clearance Management Information within ECDIS. The meeting was chaired by Mr Nick Lemon (Australia). Fourteen attendees from Member States, stakeholder organizations and academia participated in the meeting.



UKCPT participants on the first day

Topics discussed during the meeting included the portrayal of symbols, the portrayal of features that have a time-varying component (such as safety contours), the definition and portrayal of “go” and “no-go” areas and the visualisation of planned speed over the ground. The meeting also considered what display priority should be used for the UKCM information in ECDIS.

There was a discussion and analysis on the benefits of using the ISO-8211 and GML encoding formats and which one would be most suitable for S-129.

Issues relating to under keel clearance data transfer were also discussed. This included, in particular, data communication methods, file sizes and file formats.

The meeting agreed that after completing the draft data model, the Project Team will focus on completing a portrayal catalogue and associated rules. It would also develop test data, and consider how to carry out and document testing procedures.

The UKCMPT agreed to hold a workshop in Jeju Island, Republic of Korea on 22 and 23 June. The workshop will focus on completing the UKCM feature model, developing a test plan, and discussing interoperability with associated S-100-based products.

**15TH MEETING OF THE DOCUMENT REVIEW WORKING GROUP
OF THE IHO SUB-COMMITTEE
ON THE WORLD-WIDE NAVIGATIONAL WARNING SERVICE
(DRWG15)**

London, UK, 14-16 March

The Document Review Working Group (DRWG) of the IHO Sub-Committee on the World-Wide Navigational Warning Service (WWNWS-SC), which is continuing its review of the WWNWS documentation, met at the Headquarters of the International Maritime Organization (IMO) in London, UK from 14 to 16 March under the chairmanship of Mr Peter Doherty (USA). The meeting was held in the week following the fourth session of the IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR4), to take advantage of the presence of WG Members who had previously attended NCSR4 (Argentina, Canada, France, Norway, Spain, UK, USA, IMO, World Meteorological Organization [WMO], International Mobile Satellite Organization [IMSO], Inmarsat, Iridium and IHO). The IHO Secretariat was represented by Assistant Director David Wyatt.



DRWG15 participants at IMO Headquarters

The WG undertook editorial reviews of the IMO Resolutions A.705(17), as amended - *Promulgation of Maritime Safety Information*, A.706(17), as amended - *World-Wide Navigational Warning Service*, and A.306(87) - *Revised Performance Standards for Enhanced Group Call (EGC) Equipment*. The outcomes will be considered by the next (ninth) meeting of the WWNWS-SC (WWNWS9), which will be held from 28 August to 1 September 2017 in Cape Town, South Africa.

The outcomes of NCSR4 relevant to the WWNWS-SC were reviewed. These included the work of a number of Correspondence Groups and groups developing equipment guidelines in which WWNWS-SC members should be involved. Inmarsat presented the revised draft of the Inmarsat Users' Handbook and Iridium presented the initial version of their GMDSS mobile satellite system guidance document, both of which were reviewed and a number of suggested amendments were offered by the Group. The IMO Secretariat gave a demonstration of the draft IMO Global Integrated Shipping Information System (GISIS) GMDSS module, which will replace Annexes 7 and 8 to the GMDSS Master Plan and will allow IMO Member States to submit amendments directly. A number of issues and suggestions were provided to improve the current draft version.

The WG also reviewed the draft agenda for WWNWS9. The documents, submitted by the WG to WWNWS9, will be available on the WWNWS page of the IHO web site.

MEETINGS OF THE S-100 WORKING GROUP (S-100WG) AND THE S-101 PROJECT TEAM (S-101PT).

Genoa, Italy, 15-18 March

The Italian Hydrographic Institute hosted the 2nd meeting of the S-100 Working Group (S-100WG) in Genoa, Italy from 15 to 17 March. A meeting of the S-101 ENC Product Specification Project Team (S-101PT) took place on 18 March. The meetings were chaired by Ms Julia Powell (United States). Fifty participants from eighteen Member States and eleven stakeholder organizations attended the meetings. Assistant Director Anthony Pharaoh and Jeff Wootton, IHO Technical Standards Support Officer, represented the IHO Secretariat.



S-100WG participants on the first day.

The S-100 Working Group reviewed the current status of work being undertaken by the various Project Teams developing S-100-based product specifications.

Significant progress was reported on the new portrayal section of the S-102 *Bathymetric Surface* Product Specification. It is anticipated that a new edition (2.0) of S-102 will be completed in time for submission to the 9th meeting of the Hydrographic Services and Standards Committee (November 2017) for endorsement.

Progress reports were provided on the S-121 *Maritime Limits and Boundaries*, S-129 *Under Keel Clearance Management* and the S-101 *Electronic Nautical Chart - ENC* Product Specifications.

The Under Keel Clearance Management Information Project Team (UKCMPT) reported on progress made with the portrayal aspects of the S-129 *Under Keel Clearance Management Information* Product Specification. The UKCPT is also studying data transfer methods/mechanisms.

There was a detailed presentation and general discussion on “session oriented services” which is being proposed as a mechanism for data streaming services within the S-100 framework.

A draft guideline on the use and maintenance of unique identifiers for maritime resources was presented by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) for discussion. The draft document proposes a mechanism for creating Maritime Resource Names (MRN) that will enable real world entities (that are modelled as features in S-100-based products), to be assigned globally-unique identifiers.

The meeting reviewed a new data encoding and packaging standard published by the Open Geospatial Consortium (OGC) called GeoPackage. The standard will be considered for inclusion in a future edition of S-100.

The meeting discussed also a proposal on extending the current S-62 model for “Agency” and “Producer Codes” to cater for S-100-based products.

The WG agreed that the S-100 Standard should include a “General Data Model” in addition to the current “General Feature Model”. This would provide consistent, product-independent rules for mapping between interchange files and datasets; mapping datasets to portrayal input; and for enforcing restrictions which are defined in associated feature catalogues.

A report was provided on the current status of the IHO Geospatial Information (GI) Registry application and the development of a new “Conventions and Guidelines” document to assist “Submitting Organizations” in preparing and submitting proposals; and “Control Bodies” in reviewing proposals. The new document will complement the “GI Registry User Guide” which provides an overview of the GI Registry and its user interface. This was followed by a proposal and discussion on extending the Registry application to include a base “Concept Register”; and approval to conduct a review of the current content of the Feature Concept Register in relation with the development of the “Conventions and Guidelines” document.

There were also discussions on related Registry applications such as the S-100 Feature Catalogue Builder, Portrayal Catalogue Builder and a generic S-100 product viewer application.

France provided a presentation highlighting issues identified with ENCs display in S-57 ECDIS. The presentation, which was based on feedback from mariners, would also be discussed at the subsequent meetings of the ENC Standards Maintenance Working Group (20-22 March 2017) and the Nautical Cartography Working Group (16-19 May 2017). The S-100WG agreed to the formation of a joint sub-working group, subject to the views of the other two working groups, to develop a guidance document for ENC producers on improving the content of ENCs to enhance end-user experience.

The next S-100WG meeting is scheduled to take place in Singapore from 10 to 13 April 2018.

2ND MEETING OF THE ENC STANDARDS MAINTENANCE WORKING GROUP

Genoa, Italy, 20-22 March

The Italian Hydrographic Institute hosted the 2nd meeting of the ENC Standards Maintenance Working Group (ENCWG) in Genoa, Italy from 20 to 22 March. The meeting was chaired by Thomas Mellor (United Kingdom). Thirty nine participants from nineteen Member States and seven stakeholder organizations attended the meetings. Assistant Director Anthony Pharaoh and Jeff Wootton, IHO Technical Standards Support Officer, represented the IHO Secretariat.



Meeting participants on the first day

The meeting reviewed the status of documents for which the ENCWG is responsible. New editions of the S-57 *Use of the Object Catalogue*, S-58 *Recommended ENC Validation Checks*, S-65 *ENC Production, Maintenance and Distribution Guidance* and S-66 *Facts about Electronic Charts and Carriage Requirements* are due to be published during 2017. A minor new edition of S-52 Annex A - *IHO ECDIS Presentation Library*, and S-64 - *IHO Test Data Sets for ECDIS*, containing clarifications only, will also be published during 2017.

Following a proposal to develop a new product specification for high density bathymetric ENCs, there was a detailed discussion on the merits and issues related to developing a new product specification versus including detailed bathymetry in existing large scale ENCs intended to meet the *Harbour* and *Berthing* navigational purpose designations.

The meeting discussed how to improve the promulgation of “Temporary and Preliminary” (T&P) Notices to Mariners (NtM) for ENCs. It was concluded that additional guidance needs to be developed for data producers, ECDIS users and port State control authorities.

The Comité International Radio-Maritime (CIRM) presented a proposal for Annual Performance Checks to ensure that ECDIS software is kept up-to-date with current standards. Feedback was provided to CIRM on their draft document.

There was a discussion on the use of the ENC bathymetric data quality meta-object “M_QUAL”. It was reported that many ENCs provide an indication of no quality assessment (unassessed) in areas where equivalent paper charts do have bathymetric data quality information. The meeting concluded that further guidance should be included in the S-57 *Use of the Object Catalogue* (UOC) document.

France provided a presentation highlighting issues identified with ENCs display in ECDIS. The presentation, which was based on feedback from mariners, had been discussed earlier at the meeting of the S-100WG (15-18 March 2017) and would be discussed at the subsequent meeting of the Nautical Cartography WG (16-19 May 2017). The meeting agreed to participate in the joint sub-working group proposed by the S-100WG to develop a guidance document for ENC producers on improving the content of ENCs to enhance end-user experience.

The next ENCWG meeting is scheduled to take place in Sydney, Australia from 16 to 18 April 2018.

SIGNATURE OF A MEMORANDUM OF UNDERSTANDING WITH THE MEDITERRANEAN SCIENCE COMMISSION (CIESM)

IHO Headquarters, Monaco, 24 March

Mr Robert Ward Secretary-General of the IHO and Professor Frédéric Briand Director-General of the Mediterranean Science Commission (CIESM) signed a Memorandum of Understanding between their respective organizations on 24 March at the IHO Headquarters in Monaco.

The CIESM was established in 1919. It is an inter-governmental organization which promotes and encourages research within the Mediterranean and Black Sea perimeter through a network of several thousand marine researchers, applying the latest scientific tools to better understand, monitor and protect the marine ecosystems of the region. The Commission integrates a broad spectrum of marine disciplines, encompassing geophysical, chemical and biological processes, along with high-resolution mapping of the sea-bottom. The Board of the CIESM is chaired by HSH Prince Albert II of Monaco.



The CIESM has grown from the eight founding countries of its origin (Egypt, France, Greece, Italy, Monaco, Spain, Tunisia and Turkey) to 23 Member States today (Algeria, Croatia, Cyprus, Egypt, France, Germany, Greece, Israel, Italy, Lebanon, Malta, Monaco, Morocco, Portugal, Romania, Russian Federation, Slovenia, Spain, Switzerland, Syria, Tunisia, Turkey, Ukraine). The CIESM runs expert workshops, collaborative programs and regular congresses, delivering authoritative, independent advice to national and international organizations.

The headquarters of the IHO and the CIESM are both in Monaco. The main activity in which both organizations have been involved in the past was the regional mapping project of the International Bathymetric Chart of the Mediterranean.

Recent discussions between the IHO Secretariat and the CIESM, highlighted significant common interests, beyond the common regional focus of the CIESM and the Mediterranean and Black Seas Hydrographic Commission. They include crowd-sourced marine data collection, capacity building and training programmes and materials and more generally supporting the sustainable development of the blue economy.

The Memorandum of Understanding between the IHO and the CIESM is intended to provide the framework for active liaison and cooperation between the two Organizations.

APRIL

ANNUAL MEETING OF THE COMITÉ INTERNATIONAL RADIO-MARITIME (CIRM) Singapore, 22 -24 April



The Comité International Radio-Maritime (CIRM) held its Annual Meeting in Singapore from 22 to 24 April. CIRM is the international organization representing the maritime electronics industry in the development of relevant international regulations and standards and enjoys observer status with the IHO as a Non- Governmental International Organization. CIRM maintains an active role in the IHO Hydrographic Services and Standards Committee (HSSC), with a number of its members also participating as Expert Contributors in various HSSC Working Groups.

The meeting consisted of information sessions, seminars and working group meetings on topics including developments in navigation and communications, innovations in products and services, autonomous shipping, regulations and standards and cyber security.

The meeting featured a number of guest speakers from across the shipping industry, including representatives of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), the International Maritime Pilots' Association (IMPA) and the International Electrotechnical Commission (IEC).

Mr Thomas Mellor, Chair of the IHO ENC Standards Maintenance Working Group, represented the IHO and provided a presentation on "IHO changes affecting the ECDIS industry". He described the structural changes to the IHO resulting from the entry into force of the Protocol of Amendments to the IHO Convention and provided an update on the maintenance of IHO standards related to ECDIS. He re-iterated the importance of ensuring that ECDIS software is compliant with the revised standards by the 31 August 2017 deadline. He explained that the IHO will be removing the ECDIS check dataset from circulation on this date and that new instructions to mariners on how to use ECDIS Chart 1, to check they were using the latest edition of the IHO S-52 ECDIS Presentation Library, had been published and were available from the IHO website.

In relation to the development of S-100-based product specifications, the meeting expressed the wish that a clear timeline is available that states when the standards will be published and when test bed activities will begin.

One of the three working groups established by the meeting discussed how ECDIS manufacturers might develop a common strategy to influence the future guidance on the so-called S-Mode (standardised mode of operation of navigation equipment) to be developed under the aegis of the International Maritime Organization (IMO).

The meeting considered the mixed feedback that had been received from the stakeholders (including the IHO) on draft Guidelines on Annual Testing of ECDIS and agreed that further consideration was required. The progress of a pilot project to evaluate a draft Standard on Software Maintenance of Shipboard Equipment developed by the CIRM was reported. The trial is scheduled to come to an end in July 2017. The results will be analysed and used to update the draft standard. The end goal remains to get the standard adopted by the International Organization for Standardization (ISO).

The role of the CIRM “User Feedback Forum” was highlighted. The purpose of this service, hosted and administered by CIRM is to put designers and manufacturers of marine navigation and communication systems directly in touch with users during product development to support and promote Human-Centred Design (HCD). It is also supported by the Nautical Institute.

The next Annual Meeting of CIRM is expected to take place in San Sebastián, Spain from 23 to 27 April 2018 and will mark the 90th Anniversary of the establishment of the Comité.

MAY

ADMINISTRATIVE TRIBUNAL OF THE INTERNATIONAL LABOUR ORGANIZATION SYMPOSIUM CELEBRATING 90 YEARS OF CONTRIBUTION TO THE CREATION OF INTERNATIONAL CIVIL SERVICE LAW

Geneva, Switzerland - 5 May

The Administrative Tribunal of the International Labour Organisation (ILO) is the international body to hear complaints from serving and former officials of the International Labour Office and of the other international organizations that have recognized its jurisdiction. It is currently open to more than 58,000 international civil servants who are serving or former officials of 62 international organizations, including the IHO. Ms Ghislaine Fauchois, Manager Finance and Administration of the IHO Secretariat represented the IHO at a symposium hosted by the Administrative Tribunal of the International Labour Organization (ILO) celebrating 90 years of contribution to the creation of international civil service law.

The purpose of the ILO Administrative Tribunal is to make sure that justice is available to international civil servants who do not have access to it because of the legal immunity of international organizations. The general principles of law and the fundamental human rights need to be respected (Universal declaration of human rights), among them, non-discrimination and respect of property. The main principles that guide the Tribunal are:

- *"Tu patere legem quam ipse fecisti"* in Latin, which means that administrations should respect what they have themselves written. In other words, any authority is bound by the rules that it has promulgated. It is an insurance for international civil servants that the rules will be respected, that they will be protected against the *"fait du prince"*;
- The right to be heard;
- Organization practice: this is not a primary source of law, but is considered in a lot of cases; and
- Acquired rights, also a secondary source of law with great power, as it ensures the international civil servants a stability of employment conditions and a protection against arbitrary change and erosion.

The symposium was opened by Claude Rouiller, President of the Tribunal, and Drazen Petrovic, Registrar of the Tribunal. Among the several themes considered during the symposium, the following are highlighted:

- The various facets of the law governing the relations between international civil servants and international organizations, that had as speakers Chol  Charbonneau-Jobin, ILO Staff Union Adviser, Celia Goldmann, Judge, European Stability Mechanism Administrative Tribunal, Registrar of the Administrative Tribunal of the International Monetary Fund (IMF) and Christian Rohde, Principal Registrar, United Nations Office of Administration of Justice.
- The general principles applied by the Tribunal, with interventions from Dolores M. Hansen, Judge of the Tribunal, Laurent Germond, Director, Employment Law, European Patent Organisation (EPO), Guido Raimondi, President of the European Court of human rights, Eva Groniger Voss, Legal Counsel, European Organization for Nuclear Research, and Jean-Pierre Issel , Principal Legal Secretary of the International Court of Justice and Head of the Department of Legal Matters.

- Milestones of the Tribunal case law, with interventions from Donata Rugarabamu, Deputy Legal Counsel, FAO, Jean-Didier Sicault, Attorney, Senior Lecturer in International Civil Service Law at the University of Paris II, France, Sigrid Arlen, Legal Adviser of the Administrator of the International Bureau of Weights and Measures (BIPM) and Laurence Fauth, International Labour Lawyer, Legal Advisor of the Federation of International Civil Servants' Associations (FICSA).

2ND MEETING OF THE IHO TIDES, WATER LEVEL AND CURRENTS WORKING GROUP Victoria, British Columbia, Canada, 8-12 May

The Tides, Water Level and Currents Working Group (TWCWG) has been tasked by the IHO Hydrographic Services and Standards Committee (HSSC) to monitor and develop the use of tidal, water level and current information as well as to advise on tidal, water level and current observation, analysis and prediction.

The TWCWG held its 2nd Meeting at the Chateau Victoria Hotel and Suites in Victoria, British Columbia, Canada, from 8 to 12 May under the chairmanship of Ms Gwenaële Jan of France.

The meeting was attended by 27 delegates from 13 IHO Member States (Australia, Brazil, Canada, Finland, France, Germany, Japan, Netherlands, Norway, Peru, Republic of Korea, South Africa and USA), the Space and Naval Warfare Systems Command (SPAWAR) Atlantic – USA and the IHO Secretariat. David Wyatt, Assistant Director, represented the IHO Secretariat.



TWCWG2 plenary in session

Water Level Information for Surface Navigation and S-111 for testing and evaluation. It was agreed to seek, through the HSSC, guidance from the S-100WG on the need for S-112 - *Dynamic Water Level Data Transfer*, rather than a generic S-100 Data Transfer standard. This proposal will be submitted for consideration by the 9th meeting of HSSC in November.

Further progress was made on a standard for digital tide tables with a draft version being generated by the USA for further consideration. Although some inputs to the inventory of tide gauges and current meters, and the list of Actual Tides On-line Links had been received, it was agreed to highlight these tools through Regional Hydrographic Commissions with the purpose of raising awareness and encouraging additional inputs.

The Tides, Water Level and Currents Capacity Building (CB) course was discussed and the contents reviewed. Methods for further development of these courses were agreed as well as identifying the need for closer liaison with the Regional CB Coordinators to assist in selecting appropriate candidates for future courses. It was agreed that there was a need for the course material to be translated into French, Spanish and Portuguese so as to increase its availability as a CB resource.



TWCWG2 participants visit the Canadian Hydrographic Service (CHS) tide station at the Institute of Ocean Sciences

Chile offered to host the next meeting of the TWCWG in Valparaíso from 16 to 20 April 2018.

The report of the meeting and all documents will be available from the TWCWG section of the IHO website.

HIGH LEVEL CAPACITY BUILDING VISIT TO SEYCHELLES

Mahé Island, 9-12 May

IHO Director Mustafa Iptes paid a high level Capacity Building visit to Mahé Island, Seychelles from 9 to 12 May to brief senior governmental officials on the role of the IHO and the significance of national hydrographic programmes, particularly for those countries with a significant dependence on maritime activities.

In the first part of his programme, Director Iptes visited the Seychelles Maritime Safety Administration (SMSA) and called on Captain Joachim Valmont, Director General of SMSA. Director Iptes also visited the Headquarters of the Seychelles Coast Guard and had a meeting with Lt. Colonel Leslie Benoiton, Acting Commander of the Coast Guard.

In the second part of the programme, Director Iptes visited the Ministry of Tourism, Civil Aviation, Ports and Marine where he met Mr Garry Albert, Principle Secretary of the Ministry. He also provided an overview briefing to the Seychelles National Hydrographic Committee covering the role and activities of the IHO and the importance of hydrography in the context of the “Blue Economy”.



Director Iptes and the National Hydrographic Committee of Seychelles.

In the third part of his programme, Director Iptes called on HE Vincent Meriton, Vice-President of the Republic of Seychelles at the State House in Victoria where he presented the activities of the IHO and underlined the importance of hydrography and hydrographic services to any coastal State and discussed the benefits of becoming a Member State of the IHO. Director Iptes also had a meeting on the role of hydrography on underpinning the blue economy with Mr Philippe Michaud and Mr Raymond F. Chang Tave who are Special Advisers at the Blue Economy Department of the Vice President’s Office.



Director Iptes exchanges gifts with HE Vincent Meriton, Vice-President of the Republic of Seychelles.

Director Iptes was informed that Seychelles, as a maritime State in the Indian Ocean region, has a positive desire to join the IHO in the near future and is actively considering becoming a member of the IHO.

3RD MEETING OF THE NAUTICAL CARTOGRAPHY WORKING GROUP (NCWG) Redlands, California, USA, 16 – 19 May

The third meeting of the Nautical Cartography Working Group (NCWG) took place at the Headquarters of Esri, in Redlands, California, USA, from 16 to 19 May. The meeting was chaired by Mr Mikko Hovi (Finland), supported by Mr Andrew Heath-Coleman, Secretary (United Kingdom). Seventeen delegates from 13 Member States (Brazil, Canada, Denmark, Finland, Italy, Japan, Netherlands, Norway, Spain, Sweden, Turkey, United Kingdom, USA), two Expert Contributors (Esri), and the IHO Secretariat, represented by Assistant Director Yves Guillam, attended the meeting.



NCWG-3 participants gather at the entrance of the ESRI Headquarters

The Nautical Cartography Working Group (NCWG) considered all the actions from the 8th meeting of the Hydrographic Services and Standards Committee (HSSC) that related to charting. The NCWG developed a protocol (workflow) and a template, aiming to guide other working groups, Member States and stakeholders when they seek advice from the NCWG on their requirements for the portrayal of S-100-based products. Anticipating the possible disbandment of the Data Quality Working Group (DQWG) in November, the NCWG agreed to consider the work items that might fall under its remit if and when required, provided that the new quality model for bathymetric data for S-101 ENC is finalized, documented and registered.

The working group considered a proposal submitted by Germany for a new portrayal solution for data quality indicators promoting a concept of a regular and transparent grid structure. This was considered viable as a basis for further development.

A presentation on the improvement of the ENC display in ECDIS, prepared by France and considered previously by the S-100 and ENC Standards Maintenance Working Groups (S-100WG and ENCWG) at their meetings in March, was delivered by the Chair and well received. Having some members involved in the ENC Display Sub-Group established in March, the NCWG agreed on the benefits to follow the progress made by the Sub-Group, and to consider its recommendations, when available, and their impact on current standards.

The Sub-Working Group on the Future of the Paper Chart, a high priority item of the NCWG work plan, organized its work. Available materials and thoughts from previous meetings were considered and a table of content was drafted during an ad hoc session that could be used as a basis for its future report to HSSC. Allocation of tasks to the sub-group members is to be planned so that an intermediate report can be delivered at HSSC-9. In order to share what technology can bring in the future, Esri gave a promising demo and presented a paper on the limits of automated chart production in the maritime domain.



Drafting session of the Future of the Paper Chart Sub-Group

Several cartographic issues and proposals were considered by the NCWG (minimum size of islets or rocks which never cover, swinging circle of anchor berths placed beyond chart borders, etc.). Following this review, it was agreed to amend the submission template used by the NCWG: change proposals on symbology or chart regulations will now have to include a short analysis of the possible impact on ENCs.

The working group also endorsed a proposal made by the IHO Secretariat on Section 100 of S-11 Part A Ed. 3.0.0 - *Guidance for the Preparation and Maintenance of International (INT) Chart Schemes* – for the monitoring of INT charts.

At the end of the meeting, Mr Mikko Hovi (Finland) was re-elected as Chair of the NCWG, and Ms Jacqueline Barone (USA) as Vice-Chair. Considering the changes in the IHO calendar, with the IHO Council meeting in October and the shift of HSSC meetings to April-May, it was agreed to plan the next NCWG meeting between September 2018 and February 2019 and to work by correspondence during the intersession. NCWG Members were also invited to consider, by the end of 2017, whether their organization would supply a secretary in due course, if the current NCWG secretary steps down from his position before the next meeting.

Further information concerning the meeting is available on the IHO web site at www.iho.int > Committees & WG > NCWG > NCWG-3.

4TH MEETING OF THE NAUTICAL INFORMATION PROVISION WORKING GROUP (NIPWG) AND WORKSHOP ON THE VISUALIZATION OF NAUTICAL INFORMATION

University of New Hampshire, Durham, USA, 22 – 26 May

The 4th meeting of the Nautical Information Provision Working Group (NIPWG) took place in Durham, New Hampshire, USA, from 22 to 26 May, hosted by the Center for Coastal and Ocean Mapping of the University of New Hampshire (UNH). The IHO Secretariat was represented by Assistant Director Yves Guillam.

The NIPWG is the IHO working group reporting to the Hydrographic Services and Standards Committee (HSSC) that is responsible for the development of S-100 conformant product specifications in support of future e-navigation services that are intended to provide mariners with harmonized up-to-date information on integrated displays.

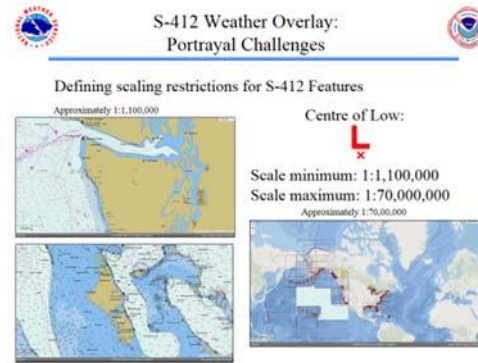
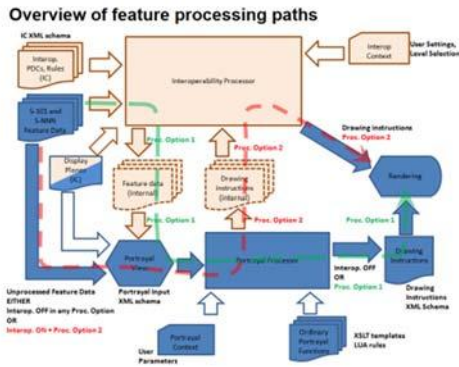
The first two days of the meeting and the morning session of the third day were dedicated to a workshop on the visualization of nautical information (VONI), attended by about 40 participants (Member States representatives - including the Chairs of the Nautical Cartography Working Group and the S-100 Working Group - , and expert contributors from industry and academia).



*NIPWG-4 participants at the Center for Coastal and Ocean Mapping
of the University of New Hampshire (UNH)*

Test bed examples, use-cases for data (crossing an area, berthing...) and web-based innovations for the display of static and real-time varying objects depicting nautical information, in multiple national languages, were shared and discussed at length, in a brainstorming mode. Following presentations depicting interesting and promising innovations that are in progress at various national levels, some participants suggested that the future maintenance regime of nautical products in general should be addressed, by taking into account the possibilities offered by new technologies (print-on-demand, near-real time updates, etc.). A live practical exercise for submitting feature definitions and attributes related to S-122 - *Marine Protected Areas* - to the IHO Geospatial Information Registry through the NIPWG wiki was organized for participants.

A number of conclusions were made at the workshop, including the need to create a “user handbook” or “e-tutorial” to assist Hydrographic Offices (HOs) on better understanding the data modelling and data-flow process and to encourage them to develop their own roadmaps to prepare for the conversion of their current data/information into S-100-based products, as appropriate.



Interoperability and portrayal issues were addressed at the VONI workshop during NIPWG-4

The plenary NIPWG meeting started on the third day immediately after the workshop. The meeting was chaired by Mr Jens Schröder-Fürstenberg (Germany). Twenty-seven delegates from 14 Member States (Brazil, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Republic of Korea, Spain, Sweden, United Kingdom, and the United States) and expert contributors (Anthropocene Institute, IIC Technologies, NOAA-Weather, SPAWAR, Portolan Sciences, SevenCs and the University of New Hampshire) attended the meeting.

The meeting considered the high-priority development of the S-100 based product specifications assigned to the NIPWG, particularly S-122 (*Marine Protected Areas*) and S-123 (*Radio Services*). These two product specifications are being developed under contract. The first drafts had been delivered prior to the meeting. Further review by NIPWG members is now underway before the contract can be considered as completed.

Thanks to the input of the expert contributors, the NIPWG members' awareness was raised on a number of interoperability portrayal and conceptual issues related to features in other product specifications such as S-111 (*Surface Currents*) and S-412 (*Weather Overlay*). The meeting was enlightened by a presentation delivered by the Chair of the S-100 Working Group who explained the complexity of this topic. The discussion focussed on those features that should be displayed on ECDIS and those that could remain in the back-of-bridge systems or could be considered as additional maritime layers for non-navigational uses.

The NIPWG agreed that the next product specification to be considered as a high priority item should be S-127 (*Traffic Management*) due to its importance in under keel clearance management systems. A proposal will be submitted to the next meeting of the HSSC for endorsement.

The decisions of the 1st Session of the IHO Assembly were noted - in particular the amendments to IHO Resolution 4/1967 on submarine cables.

With regard to the definition of e-Navigation Maritime Service Portfolios (MSP) by the IMO, the NIPWG considered that its current work plan is adequate to support the future implementation of relevant MSPs through the delivery of appropriate data (which is a high-priority for HOs). However, the NIPWG considered that it cannot drive by itself the delivery of MSP services, due to the lack of resources and guidance. Subject to the outcome of the forthcoming meetings (98th and 99th meetings of the IMO Maritime Safety Committee, and 1st meeting of the IMO-IHO Harmonization Group on Data Modelling), the NIPWG considered that the current strategy in place in the IHO, is consistent with the IMO's e-Navigation Strategy Implementation Plan.

At the end of the meeting, Mr Jens Schröder-Fürstenberg (Germany) was re-elected as Chair of the NIPWG, and Dr Edward Hosken (United Kingdom) as Vice-Chair. Mr Thomas Loeper (USA) was also confirmed as Secretary of the Working Group. The organizations supporting the office bearers were thanked for their efforts.

The 5^h meeting of the NIPWG is scheduled to be held in Genoa, Italy, from 12 to 16 March 2018.

Further information concerning the meeting and the workshop is available on the IHO web site at www.iho.int > Committees & WG > NIPWG > NIPWG-4.

40TH ANTARCTIC TREATY CONSULTATIVE MEETING

Beijing, China, 22 May to 1 June



The 40th Antarctic Treaty Consultative Meeting (ATCM-40) was held in Beijing, China. The Antarctic Treaty Consultative Meeting is the primary forum for the representatives of Parties to the Antarctic Treaty to exchange information and to formulate measures, decisions and resolutions to further the principles and objectives of the Treaty. Delegates from 45 countries and 12 scientific, intergovernmental and non-governmental organizations participated over ten days. The IHO is an Invited Expert to ATCM and was represented at the meeting by Secretary-General Robert Ward.

The Secretary-General, as Chair of the IHO Hydrographic Commission on Antarctica (HCA), introduced a report from the IHO at the opening plenary session. The report described the state of hydrographic surveying and nautical charting in Antarctica and highlighted the fact that very little of the waters of Antarctica have been surveyed, which poses serious risks of maritime incidents and impedes the effectiveness of marine science and related activities. Where nautical charts do exist, many have limited usefulness because of the lack of reliable depth or hazard information.

In order to obtain more information to improve hydrographic knowledge and nautical charts of the region, the IHO recommended that the ATCM encourage all vessels operating in Antarctica to be collecting depth data at all times when under way unless particular restrictions apply. They can use existing shipboard equipment supplemented by low-cost data logging systems for this *passage sounding*. The Secretary-General reported that the International Association of Antarctic Tour Operators (IAATO) is actively cooperating with the IHO to make tourist ships available - but there is a need to involve all other vessels - not just tourist vessels.

In addition, the Secretary-General informed the ATCM that all depth data, no matter what quality, no matter how old, that has already been collected as part of scientific and other studies, should be identified, declared and forwarded to the IHO Data Centre for Digital Bathymetry (IHO DCDB). This data will be useful in all those areas where no other data exists - which, for Antarctica is over 90% of the sea area.

The IHO report was considered further during the meeting, including the IHO proposal to conduct an information seminar on hydrography at the next ATCM in Ecuador in 2018. This was subsequently agreed by ATCM-40. This supports the 2018 priority item in the ATCM multi-year strategic work plan concerning hydrographic surveying in Antarctica. ATCM-40 also agreed to continue to encourage all parties to contribute bathymetric data to the IHO DCDB.



While in Beijing, the Secretary-General took the opportunity to call on Deputy Inspector Wang Zelong at the headquarters of the China Maritime Safety Administration, where he discussed the coordination of nautical chart production in Chinese waters. He also had discussions with Mr Lin Shanqing, the Deputy Administrator of the State Oceanic Administration (SOA), particularly in



relation to SOA involvement in China's emerging marine spatial data infrastructure and its contribution to the work of the GEBCO Sub Committee on Undersea Feature Names (SCUFN).

The 41st meeting of ATCM will take place in Ecuador in mid-2018. It is proposed that the 15th meeting of the HCA takes place concurrently with ATCM-41. This will enable the maximum number of HCA delegates to participate in the IHO awareness raising seminar and in the work of the ATCM, hopefully, as part of their respective national delegations.

44TH MEETING OF ISO/TC 211 - GEOGRAPHIC INFORMATION/GEOMATICS Stockholm, Sweden, 29 May - 2 June

The Swedish Standards Institute (SIS) hosted the 44th Working Group and Plenary Meeting of the Technical Committee (TC) 211 - *Geographic Information/Geomatics* of the International Organization for Standardization (ISO) in Stockholm, Sweden from 29 May to 2 June.

The ISO TC211 deals with the development of standards and specifications for the geospatial domain. The International Hydrographic Organization (IHO) is a Class A liaison member of ISO TC211 and participates in its standards development and maintenance activities. The ISO/TC211 19100 series of standards and specifications underpins the IHO S-100 Universal Hydrographic Data Model.

Assistant Director Anthony Pharaoh represented the IHO Secretariat at the 44th meeting.



Participants to the 44st ISO/TC211 Plenary Meeting

The meeting agreed to the establishment of an internal liaison with ISO/TC 307 dealing with blockchain and electronic distributed ledger technologies. Blockchain is a digital platform that records and verifies transactions in a public and secure manner. It provides a decentralised, cryptography-based solution for sharing information. ,

The meeting agreed a resolution to produce a new edition of the ISO 19152 standard (Land administration domain model). This was in response to a proposal by the International Federation of Surveyors (FIG) (class A liaison) following discussions that took place at the 6th workshop of the Land Administration Domain (LADM) that was held in Delft, Netherlands in March 2017. Relevant liaison and stakeholder organizations such as FIG, IHO, the Open Geospatial Consortium (OGC), the United Nations (UN) Committee of Experts on Global Geo-Information Management (UN-GGIM), the UN Expert Group on Land Administration and Management (UN EG—LAM), ISO/TC 307, the International Society for Photogrammetry and Remote Sensing (ISPRS), the World Bank, UN Habitat, the UN Human Settlements Programme, the UN Division for Ocean Affairs and the Law of the Sea (UNDOALOS), and the UN Food and Agriculture Organization (FAO) were invited to participate in the drafting of the new edition.

ISO requires that all standards undergo regular revisions. The 44th plenary meeting agreed that the following relevant standards, should undergo a systematic review: ISO 19118:2011 (Encoding), ISO 19141:2008 (Schema for moving features) and ISO 19156:2011 (Observations and measurements).

TC 211 also maintains a number of resources for users and implementers of the 19100 geographic standards and associated models. These include:

- A harmonized model repository which includes UML models of all the 19100 standards and information on how to access them.
- A glossary of terms and definitions which has been translated into 14 different languages. Its purpose is to encourage consistency in the use and interpretation of geospatial terms/definitions used in the 19100 standards.
- The ISO TC211 XML Schema Repository, which includes XML schema, transforms, Schematron rules, and examples for ISO TC211 metadata and data quality standards.

A half-day workshop on GIS (Geospatial Information System)/BIM (Building Information Modelling) interoperability was also held during the course of the 44th meeting.

The next ISO/TC211 working group and plenary meeting will take place in Wellington, New Zealand from 27 November to 1 December 2017.

JUNE

UN OCEAN CONFERENCE 2017 UN Headquarters, New York, USA, 5-9 June



The Secretary-General represented the IHO at the United Nations (UN) Conference to Support the Implementation of Sustainable Development Goal (SDG) 14: *Conserve and sustainably use the oceans, seas and marine resources for sustainable development* (The Ocean Conference). The Ocean

Conference took place in the General Assembly Hall at the UN Headquarters in New York, USA from 5 to 9 June, coinciding with World Oceans Day, observed annually on 8 June. The overarching theme of the Ocean Conference was - *Our oceans, our future: partnering for the implementation of Sustainable Development Goal 14*. The Governments of Fiji and Sweden took on the co-hosting responsibilities for the Conference.

SDG14 comprises 10 targets covering a wide range of issues affecting the continuing sustainable development of the seas and oceans.

Almost all the 193 Member States of the UN attended. Many were represented by their Head of State or Government. The heads of intergovernmental and international organizations, together with representatives from business, academia and science, and ocean and marine life advocates were present in the Conference, making a total of about 6,000 participants. The Secretaries-General or equivalent of all the principal intergovernmental organizations with which the IHO collaborates were present, including UNESCO - Intergovernmental Oceanographic Commission (IOC), the International Maritime Organization (IMO) and the International Seabed Authority (ISA).



Opening Session of the UN Ocean Conference



IHO Information Display

In addition to the main discussions in the Conference, a very extensive programme of side meetings and briefings took place, covering the full range of interests in improving the state of the world's seas and oceans and moving towards achieving the SDG14 targets set for 2020, 2025 and 2030.

The Secretary-General was able to make a statement on behalf of the IHO during the Conference. He pointed out that all the targets agreed under SDG14 depend upon a better knowledge of the depth and shape of the seafloor, not only in the deeper ocean but also in the world's coastal waters where 50% remains unsurveyed.

The Secretary-General highlighted the IHO's continuing desire to improve the currently unsatisfactory situation and the need to support government hydrographic surveying programmes. He explained that in addition to national surveying programmes, the IHO is now re-invigorating the concept of crowd-sourcing or passage sounding - where all vessels use their standard navigation equipment to help measure and map the depth of the sea. At the same time, the IHO is investigating the use of other innovative technologies, including the use of

autonomous roaming vehicles, and the determination of the depth in shallow water using satellite imagery, where conditions allow. The Secretary-General specifically mentioned the IHO-IOC GEBCO (General Bathymetric Chart of the Oceans) programme as a way to support the aims of SDG14.

He concluded by saying that Governments need to support their national hydrographic services; industry and academia must ensure that the depth data that they already hold is made available for the common good; and that the entire seafaring community should support the IHO in its global, crowd-sourced bathymetry programme.

During the Conference, Mr Yohei Sasakawa, on behalf of the Nippon Foundation, announced that the Nippon Foundation will increase its involvement in the IHO-IOC GEBCO programme and is planning to contribute US\$18.5M over ten years to support the specific goal of comprehensively mapping all of the seafloor by 2030. This will be known as Project Seabed 2030.

The Conference ended with the overwhelming adoption of a 14-point *Call for Action* by the UN Member States. Only three States, Egypt, the Russian Federation and the USA expressed any reservations in adopting the call for action.

The Governments of Kenya and Portugal undertook to take on the co-hosting responsibilities for the next Conference in 2020, which will assess the continuing progress being made towards meeting the SDG14 targets.



The Fiji Military Forces Band opens the World Ocean Day celebrations

MONACOLOGY 2017

Monaco, 06 to 09 June

The 2017 edition of Monacology took place from 06 to 09 June directly in front of the International Hydrographic Organization's Headquarters. Monacology is an annual event that aims to raise children's awareness about the environment and sustainable development. This year the organizers made reference to the United Nations sustainable development goals for the protection of the planet. The IHO presented a chart of the «Marine protected area from Toulon to Orbetello» courtesy of the French Hydrographic Office (SHOM).



IHO stand

Learning to read and grasp the geography of our Blue Planet is allowing our youngsters to address the question of hydrography and marine science and to create awareness of their importance with regards to the sustainable development goals determined by the United Nations and in particular Goal 14 involving the seas and oceans.

In this instance all the participating youngsters from local schools, including special needs children, associations for the underprivileged and sick children were able to produce their own chart which they could take home or back to school.



Two GEBCO globes were presented as gifts

Each budding hydrographer was given an IHO badge « Junior Hydrographer » in recognition of their efforts.



« Junior hydrographer »

The IHO was honored by the visit of HSH Prince Albert II, on Friday 9 June. He was welcomed by Director Gilles Bessero who presented the IHO Stand.



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HSH Prince Albert II of Monaco on the IHO stand with Director Gilles Bessero
(photo credit Manuel Vitali/Communication Department)

98TH SESSION OF THE IMO MARITIME SAFETY COMMITTEE

London, United Kingdom, 7-16 June

The Maritime Safety Committee (MSC) is the highest technical body of the International Maritime Organization (IMO). The functions of the MSC are to consider matters related to aids to navigation, construction and equipment of vessels, rules for the prevention of collisions, handling of dangerous cargoes,



IMO MSC 98 in plenary session

maritime safety procedures, hydrographic information, salvage and rescue and any other issues directly affecting maritime safety. The 98th session of the MSC (MSC98) was held at the IMO Headquarters in London, UK, from 7 to 16 June. Assistant Director David Wyatt represented the IHO. In addressing the agenda of the session in his opening statement, the Secretary-General of IMO, Mr Kitack Lim, encouraged all to implement standards in a coordinated and uniform manner across the maritime world. He noted shipping accounts for over 80% of world trade and highlighted the economic benefits supported by well managed and regulated shipping. He highlighted the United Nations Ocean Conference, which was taking place in New York at same time as MSC98 and that the health of oceans and seas and the protection of the marine environment should be a concern to all. He noted the number of piracy incidents in the Gulf of Guinea had increased in the past year and the need for accurate reporting was important to increasing security at sea, he also noted an increase in incidents in the Gulf of Aden and the northwest Indian Ocean despite the continued presence of multi-national naval forces and well organised reporting processes. Highlighting the outcomes of the 4th meeting of the Sub-Committee for Navigation, Communications, and Search and Rescue (NCSR4), he particularly noted the draft amendments to the SOLAS Convention, the draft performance standards for GMDSS equipment and the activation of the IMO-IHO Harmonization Group on Data Modelling (HGDM) as significant topics which needed to be addressed and progressed by MSC98 together with the initial work on the second version of the Polar Code.

Unsafe Mixed Migration by Sea

The Committee encouraged Member States to use the facilitation module in the Global Integrated Shipping Information System (GISIS) and the information included in the appendix to MSC.1/Circ.896/Rev.2 - *Interim measures for combating unsafe practices associated with the trafficking, smuggling or transport of migrants by sea* - to report any incidents.

Hydrography and Charting

The MSC addressed various matters related to hydrography and nautical charting resulting from the NCSR4 held in March this year. The main items included adopting the amendments to the existing long Sand Head two-way route and SUNK Inner precautionary area in the traffic separation scheme “In the SUNK area and in the Northern approaches to the Thames Estuary” for dissemination by means of COLREG.2/Circ.69; the adoption of a new recommended route “Off the western coast of Izu O Shima Island”, a new area to be avoided “Off Peninsula de Osa in the Pacific coast off Costa Rica” and a new area to be avoided as an associated protective measure for the “Tubbataha Reefs Natural Park Particularly Sensitive Sea Area (PSSA) in the Sulu Sea” to be published as SN.1/Circ.335. These routing measures will come into force on 1 January 2018.

The Committee approved the amendments to MSC.1/Circ.1503- *ECDIS - Guidance for good practice* - developed by the sub-Committee on Human Element, Training and Watchkeeping (HTW) and instructed the Secretariat to issue it as MSC.1/Circ.1503/Rev.1.

Global Maritime Distress and Safety System (GMDSS)

The Committee adopted the draft amendments to the following resolutions:

- MSC.148(77) on *Revised performance standards for narrow-band direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX)* – to be issued as resolution MSC.430(98);
- MSC.306(87) on *Revised performance standards for enhanced group call (EGC) equipment* – to be issued as resolution MSC.431(98);
- MSC.401(95) on *Amendments to Performance standards for multi-system shipborne radionavigation receivers* – to be issued as resolution MSC.432(98).

The MSC supported the proposed text amendments to and the draft MSC resolution on *Performance standards for a ship earth station for use in the GMDSS*, including revisions submitted by the United Kingdom, United States and Comité International Radio-Maritime (CIRM). The Secretariat was tasked to make the necessary editorial amendments and to issue it as resolution MSC.433(98).

The MSC endorsed the action taken by the NCSR in instructing the Secretariat to convey a liaison statement on changes consequential to displaying NAVTEX and Inmarsat-C SafetyNET information on Integrated Navigation Displays to IHO, WMO and IEC TC 80 (see NCSR4/29 annex 6).

The MSC approved the draft Modernization Plan of the Global Maritime Distress and Safety System (GMDSS) as well as approving draft amendments to SOLAS IV and its appendix on certificates, with a view to subsequent adoption at MSC 99. The Committee also supported the text provided for use of the term *Recognized mobile satellite service* and the definition that was submitted.

The Committee endorsed the view of the NCSR that the recognition of the Inmarsat FleetBroadband Maritime Safety Data Service for use in the GMDSS should be treated as a new application, noting that not all elements of resolution A.1001(25) would need to be reviewed in detail in this specific case and that it would be subject to the evaluation of these elements by the International Mobile Satellite Organization (IMSO). The MSC invited the IMSO to undertake the necessary technical and operational assessment of the Inmarsat FleetBroadband Maritime Safety Data Service and provide a report for consideration by the NCSR.



Mr Ashok Mahapatra, Director Maritime Safety Division, addressing the conclusion of IMO MSC 98 with his Division staff

e-Navigation

The MSC agreed to activate the IMO/IHO HGDM and endorsed the holding of the first meeting of this Group, at IMO Headquarters in London, from 16 to 20 October 2017.

Maritime Cybersecurity

The Committee approved the MSC-FAL.1/Circ.3 – *Guidelines on maritime cyber risk management* – which supersedes the interim guidelines contained in MSC.1/Circ.1526.

Office Bearers

The MSC unanimously re-elected Mr Bradley Groves, Australia, as Chair and Mr Juan Carlos Cubisino, Argentina, as Vice-Chair of the Committee for 2018. The Chair also confirmed that

MSC98 was the last MSC at which Mr Ashok Mahapatra, Director Maritime Safety Division, would be attending as part of the IMO Secretariat due to his planned retirement in October.

Next Sessions

The next sessions of the MSC are scheduled from 16 to 25 May 2018 (MSC99) and from 3 to 7 December 2018 (MSC100).

15TH MEETING OF THE IHO CAPACITY BUILDING SUB-COMMITTEE

Paramaribo, Suriname, 7 to 9 June

The 15th Meeting of the IHO Capacity Building Sub-Committee (CBSC15) took place in Paramaribo, Suriname hosted by the Maritime Authority Suriname (MAS) from 7 to 9 June. The meeting was chaired by Mr Thomas Dehling (Germany) and attended by 28 participants representing the 15 Regional Hydrographic Commissions (RHC), 14 Member States and one observer organization. The opening ceremony was attended by the Chair of the MAS Supervisory Board, Mr. Theo Vishnudatt. The IHO Secretariat was represented by Director Mustafa Iptes and Assistant Director Alberto Costa Neves (CBSC Secretary).

The CBSC is responsible for the continuous assessment of the status of hydrographic surveying, nautical charting and maritime safety information in nations and regions where hydrography is developing and for the establishment and maintenance of close relationships with national agencies and international organizations in terms of Capacity Building.

The Sub-Committee considered the impact of the revised IHO Strategic Plan (2017) and of the IHO Capacity Building (CB) Strategy and considered that the CB Strategy is fit for purpose. The impact of using e-learning to deliver some components of CB training was considered in light of the outcomes of the 1st Session of the IHO Assembly and it was agreed that the next revision of the Strategy should highlight the importance of this option.

The meeting reviewed the status of cooperation with other international organizations and the need to improve liaison with the International Maritime Organization (IMO) to properly assess and deliver Capacity Building in an effective way under the UN concept of "Deliver as One".

The meeting adopted three new CB Procedures covering the CB Management Plan, the assessment of the status of CB Phases of coastal States and the certificate of completion of CB activities. The need to improve the preparation and execution of technical visits was considered as a key element for work of the Sub-Committee and a draft CB Procedure is being developed to ensure visits are properly conducted. The meeting highlighted the importance of the implementation of a National Hydrographic Coordinating Committee to support the development of the national infrastructures and ways to reflect this in the CB Procedures. The improvements in the set of CB Procedures are a key element to ensure the CB Work Programme contributes to the objectives of the IHO in an optimal way.

The reports from the Regional Hydrographic Commissions indicated an increase in the level of in-kind contributions from developed Member States in support of developing countries and the continuation of the generous support from the Republic of Korea and from the Nippon Foundation of Japan to the IHO CB Fund. The meeting was informed of the support from USA/NOAA with a Chart Adequacy Evaluation Workshop for foreign personnel and on the developments in the Training, Research and Development Center of the East Asia Hydrographic Commission. The meeting also noted the progress in developing an e-learning course on Maritime Safety Information, the support provided to Cabo Verde in preparation for the IMO Mandatory Audit Scheme and the progress in the South-West Pacific with the support of New Zealand's Pacific Region Navigation Initiative (PRNI) and risk assessment methodology and of other Member States in the region.

The Sub-Committee also noted the progress made in regional and national projects related to Capacity Building, including the development of open-source tools for risk assessment by New Zealand, a case study from Italy in developing a hydrographic service in Uganda, the creation of the Canadian Ocean Mapping Research and Education Network, the creation of the Suriname Aids to Navigation Academy, outcomes of the hydrographic definition study in the Maritime Organization of West and Central Africa (MOWCA) and the support from UK to the Organization of Eastern Caribbean States (OECS), to the Commonwealth Marine Economies (CME) Programme and to the Overseas Territories Seabed Mapping Programme.



Some of the Participants of the 15th meeting of the IHO Capacity Building Sub-Committee (CBSC15)

The meeting updated and adjusted the 2017 CB Work Programme and approved the 2018 CB Management Plan and the 2018 CBWP considering the priorities identified by the Sub-Committee, the available resources and potential additional resources.

The meeting re-elected Mr. Thomas Dehling (Germany) as the CBSC Chair and elected Capt. Lamberto Lamberti (Italy) as the Vice-Chair for the period of 2017-2020. The next meeting of the CBSC is planned to be held in Goa, India, from 30 May to 1 June 2018, hosted by the National Hydrographic Office of India.

9TH MEETING OF THE IHO INTER-REGIONAL COORDINATION COMMITTEE 12-14 June, Paramaribo, Suriname

The ninth meeting of the Inter-Regional Coordination Committee (IRCC9) was held in Paramaribo, Suriname, from 12 to 14 June, hosted by the Maritime Authority Suriname (MAS). The meeting was attended by the Chairs, or their representatives, of the 15 Regional Hydrographic Commissions (RHCs) and the IRCC subordinate bodies and 15 observers. A total of 35 participants were present. The meeting was chaired by Dr Parry Oei (Singapore). The opening ceremony was attended by the Chair of the MAS Supervisory Board, Mr Theo Vishnudatt. The IHO Secretariat was represented by Director Mustafa Iptes (IRCC Secretary) and Assistant Director Alberto Costa Neves.

The IRCC reviewed the reports and activities of the RHCs and its subordinate bodies, considered the outcomes of the 1st Session of the IHO Assembly (A-1), acknowledged the accomplishments and challenges of the Capacity Building programme and IBSC activities, examined the developments on Crowd-Sourced Bathymetry and maximizing the use of hydrographic data and considered issues related to the Worldwide ENC Database (WEND).

The meeting considered at the regional level the key achievements and developments on the status of surveys and charting, on the harmonization of depth data and its presentation in ENCs, the provision of the joint regional bathymetric databases, on the implementation of harmonized chart datum, on the parallel processing of all ENC and paper chart issues, on the progress of Marine Spatial Data Infrastructures and on the broad aspects related to the use of official S-57 data in the leisure craft market. The Committee noted with satisfaction that some regions had made significant progress in eliminating overlaps, properly assessing CATZOCs and addressing gaps in a consistent way and that regional geoportals with ENC data had been established to facilitate harmonization of charts and risk assessment.

The Committee received reports on the progress made in all the Pacific Island Countries and Territories (PICTs) with respect to governance of hydrographic activities, with significant headway being made in Fiji, Papua New Guinea, Solomon Islands, Tonga and Vanuatu, the endorsement of a *Regional Strategy on Safety of Navigation in the Pacific*, and the contribution of New Zealand in conducting risk assessments in the Cook Islands, Niue, Tonga and Vanuatu and implementing the *Pacific Region Navigation Initiative*.

Reports presented additional contributions from Member States to regional projects from Mexico to the Meso-America and Caribbean Sea area providing training through its FOCAHIMECA Project, from France to the Western and Central Africa Definition Study, from the United Kingdom with the Commonwealth Marine Economies Programme, with the Overseas Territories Seabed Mapping Programme and with the Scoping Study in the Organisation of the Eastern Caribbean States (OECS). The USA reported on its Crowd-Sourced Bathymetry Pilot Project in conjunction with the IHO Data Centre for Digital Bathymetry (DCDB), NOAA and Rose Point Navigation Systems for data logging.

The fact that no more than 15% of ocean depths have been directly measured was noted by the meeting that recognized the need to maximize data gathering by increasing data collection by government agencies in priority areas; by releasing available data from scientific and commercial surveys and complementing these efforts with satellite-derived and crowd-sourced bathymetry. The meeting also identified the importance of the Crowd-Sourced Bathymetry Working Group, the Nippon Foundation support to the GEBCO Seabed 2030 Project and the need for additional engagement on data gathering in several forums.

The Committee received reports on the development of an IHO Satellite-Derived Bathymetry assessment and charting programme for uncharted or poorly charted areas, on matters related to the future of the paper chart, to the implementation of S-100 product specifications, to the increasing need for improved data and navigational products (through e-navigation and marine services portfolios - MSPs) to support the effective and sustainable use of maritime spaces and their natural resources.

The meeting reviewed progress towards the full implementation of the WEND Principles, the guidance for the preparation and maintenance of INT Chart and ENC Schemes, the need to implement ENC scheming at the regional level, the challenges for coordinating INT Chart schemes and improving ENC coverage, in particular the establishment of consistent INT schemes in semi-closed basins. The Committee urged Regional Hydrographic Commissions to seek to resolve ENC overlaps in small scale usage bands which pose significant risks to navigation and endorsed a proposed draft IHO Resolution for eliminating overlapping ENCs. The importance of providing CATZOC information in all ENCs was considered, in particular to support the work of the RHCs in risk analysis.

The Committee commended both Regional ENC Coordinating Centres (RENCs) on the work undertaken hitherto to reach maturity and stability and for the support provided to hydrographic offices and end-user service providers, and the IHO Secretariat on the improvements made to the IHO ENC catalogue and other aspects of the infrastructure. The meeting considered the need for the RHCs to encourage the Member States in each region to consider making all ENC data available through the RENCs and to release bathymetric datasets or subsets into the public domain via the IHO DCDB. The meeting endorsed a revised statement on the use of Marine Information Overlay (MIO) to assist in drawing attention to any differences between a published paper chart and the corresponding ENC or to assist in displaying Temporary & Preliminary notices for an ENC.

The IRCC noted the establishment of the Open Geospatial Consortium (OGC) Marine Domain Working Group (Marine DWG), a group of experts that advises OGC on the way forward in relation to the Marine Domain, identifying gaps in the current OGC baseline regarding marine geospatial data and ocean mapping. The cooperation with OGC ensures that the evolving IHO standards are brought to the attention of the OGC that best practices are used and the latest technical approaches considered. The meeting was also informed on the development of the Concept Development Initiative - Defining the Future of Marine Spatial Data Infrastructure (MSDI), developed by OGC at the request of the MSDIWG and a newly prepared White Paper on MSDI.

The meeting was informed of the achievements through the Capacity Building Programme, the recent technical visits to Liberia and to Cabo Verde, the technical assessment and advice visits to Samoa and Tuvalu, the technical and raising awareness workshops, the Maritime Safety Information trainings and courses in Hydrography and Nautical Cartography. The meeting acknowledged the role of the generous support from the Republic of Korea and from the Nippon Foundation of Japan, the in-kind support from Member States and industry stakeholders and the work of the RHC CB Coordinators and Project Leaders in these achievements.

The Regional Hydrographic Commissions expressed concerns on the main difficulties and challenges posed by the reduced resources that have restricted surveying capability, and the maintenance of staff members and their ability to contribute to the IHO Work Programme. The meeting noted in particular the restrictions imposed on developing the capacity of the Capacity Builders and on the support needed from the primary charting authorities for capacity building activities. These are under constant strain as scarcer resources are targeted on national priorities. In this context, increased support from the IHO Secretariat was seen as critical to the ongoing success of the Capacity Building Programme, not only for implementing the programme as such but also for its effectiveness, governance and due diligence for the benefit of the Member States.

The Committee agreed that a major challenge to the successful operation and further enhancement of the Capacity Building Programme is the need for additional Capacity Building assistance in the Secretariat due to the significant increase in the level of CB activities and other competing IHO requirements/priorities.

Attention was devoted to other challenges for an effective and sustainable CB Phase 1, in particular the need to identify potential staff to accompany MSI trainers in order to become MSI trainers themselves, the need for closer engagement of the National MSI Coordinators of coastal States with the relevant NAVAREA Coordinators and between NAVAREA Coordinators and Regional CB Coordinators. The meeting was also briefed on the use of Training-for-Trainers (TFT) and e-learning methods to support the development of CB Phase 1, on the importance of

using the Joint Manual on MSI to ensure correct terminology and formats are used in MSI messages.

The meeting was also briefed on recent progress in the Arctic with the development of Hydrographic Risk Assessment, the work of the Arctic International Charting Coordination Working Group, the establishment of the Arctic Regional Marine Spatial Data Infrastructure Working Group, the Arctic Voyage Planning Guide for mariners and the investigation on the potential of remote sensing and satellite-derived bathymetry and of crowd-sourced bathymetry for use within the Arctic community.

The meeting noted that the 40th Antarctic Treaty Consultative Meeting (ATCM) held in Beijing (China) agreed to invite the HCA, through the IHO, to hold an awareness seminar on the status and impact of hydrography in Antarctic waters.

The Committee was informed on the progress made with publications under its responsibilities and acknowledged the work done by the MSDIWG on the draft New Edition 2.0.0 of the IHO Publication C-17 *Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices* and by the IBSC on the 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*. The three publications were endorsed and the Committee will seek their approval by the Member States according to the process agreed by the IHO Assembly. The meeting also approved clarifications in Editions 1.0.1 of the IHO Publication S-5A and S-5B *Standards of Competence for Category "A" and Category "B" Hydrographic Surveyors* and noted the development of the Guidance Document on Crowd-Sourced Bathymetry.

The IRCC considered the outcomes of the 1st Session of the IHO Assembly including those related to the establishment of the IHO Council and its membership, the revision of IHO Resolutions, the 2018-2020 IHO Work Programme and the IHO Strategic Plan. The meeting decided to establish a drafting group to review the IHO Resolution 2/1997 as amended *Establishment of Regional Hydrographic Commissions - RHC* and tasked the East Asia Hydrographic Commission to provide input to the IHO Resolution 1/2005 *IHO Responses to Disaster*. The meeting encouraged RHCs to consider using satellite derived bathymetry and risk assessment methodologies in uncharted or poorly charted areas in their respective regions as a way of developing survey priority areas as part of attracting donor funding.



The Participants to the IRCC9 Meeting.

The meeting also considered the outcomes of HSSC, in particular those related to chart quality and indicators and the need for IHO Member States to populate ENC values in particular for Usage Bands 3, 4, 5 and 6, noting that the concept of CATZOC values is expected to remain valid for future S-101 ENCs and the key aspects handled by the Data Quality Working Group. The meeting invited the RHCs to encourage Member States to support the establishment of a Working Group on Marine Geospatial Information (WG-MGI) by the United

Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) and to promote the use of the UN-GGIM Shared Guiding Principles for Geospatial Information Management to align the S-100 framework for marine geospatial data and regional implementations of Marine Spatial Data Infrastructures.

The meeting considered the benefits of having solid infrastructure in the IHO Secretariat to support and inform decisions of its Member States and the subordinate bodies, and the developments in databases, online services and IHO Geographic Information System (GIS) tools.

The meeting also considered the positive developments on the management, review and monitoring of new INT Charts and endorsed the amendment to Section 100 of IHO Publication S-11 - Part A Ed. 3.0.0 - *Guidance for the Preparation and Maintenance of International (INT) Chart Schemes*.

The meeting re-elected Dr Parry Oei (Singapore) as the IRCC Chair and elected Mr Thomas Dehling (Germany) as the Vice-Chair for the period of 2017-2020. The next meeting of the IRCC is planned to be held in Goa, India, from 4 to 6 June 2018, hosted by the National Hydrographic Office of India. Following meetings will be in Italy (2019) and in Poland (2020).

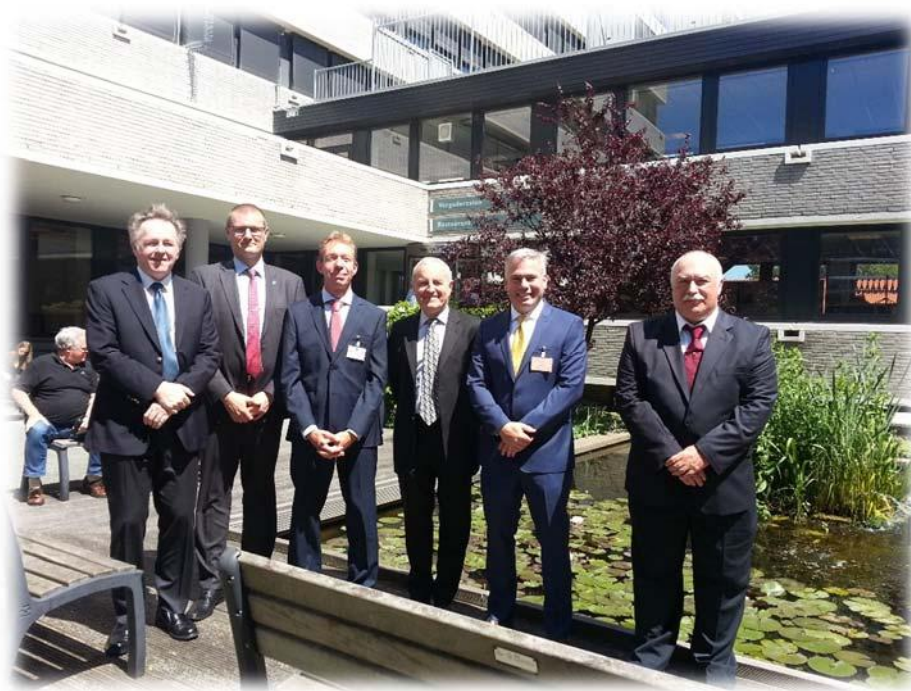
The meeting was followed by a visit to Maritime Authority Suriname and to the Maritime Museum.

All the documents of the meeting are posted at the IRCC section of the IHO website.

12TH MEETING OF THE DATA QUALITY WORKING GROUP The Hague, Netherlands, 13-15 June

The 12th meeting of the IHO Data Quality Working Group (DQWG) was hosted by the Hydrographic Service of the Royal Netherlands Navy from 13 to 15 June in The Hague,

The meeting was chaired by Mr Antti Cástren (Finland). Five delegates from four Member States (Australia, Finland, Netherlands and USA) attended the meeting. Assistant Director Yves Guillam represented the IHO Secretariat.



Participants in the DQWG-12 meeting, The Hague, Netherlands

The meeting started with a comprehensive review of the work items of the DQWG work programme and of the list of new proposals received prior to the meeting. This was undertaken in order to review the requirements being placed upon the DQWG by the Hydrographic Services and Standards Committee (HSSC) to which the DQWG reports. As a result of the review, it was obvious that there were expectations from other groups to obtain support from the DQWG on data quality and guidance on the harmonization of data quality aspects for all S-100 based product specifications. Subsequently, the participants agreed that the DQWG Terms of Reference (ToRs) should be reconsidered to better address the continuing and evolving role of the DQWG and to reinvigorate its membership. Draft revised ToRs were prepared and will be submitted to HSSC for its consideration.

The US representative presented the standards and rules that are applied in NOAA's current CATZOC¹ project that aims to incorporate CATZOC values in about 1,220 ENCs. In order to assist all ENC producers in the harmonized use of CATZOC values, and therefore improve their common understanding by mariners, it was proposed that best national practices should be shared and the development of appropriate guidance could be considered subsequently. All participants agreed that such a mechanism would ensure a smoother transition plan when the convertor from S-57 to S-101 ENC becomes operational, at least for its data quality component.

The provision of materials to support the education of mariners on the quality of bathymetric data is one of the work items assigned to the DQWG. A draft proposal for a new IHO publication, S-67 – *Mariners' Guide to Accuracy of ENCs*, was submitted by Australia. This was well received and reviewed by the DQWG with the intention to submit the draft to HSSC for endorsement.

¹ *Category of Zone of Confidence.*

Following a request made by the S-100 Working Group, a preliminary comparison of the data quality components within the ISO geospatial standards, the INSPIRE² Directive and the IHO S-100 – *Universal Hydrographic Data Model* - was presented by the Netherlands representative. Some further work still needs to be done to ensure a full comparison with the S-100 framework.

Some other important remaining tasks were identified including the completion of several draft versions of texts (data quality model, decision tree for the allocation of quality values to bathymetric data) to be included in S-100 and in existing sections of the S-101 Data Classification and Encoding Guide (DCEG) and the clarification of the use of the attribute *Quality of Horizontal Measurement*.

Assuming that the continuation of the activities of the DQWG will be approved at the HSSC in November, the next meeting of the DQWG is scheduled to take place from 15 to 19 January 2018 in Monaco. This will enable the DQWG to provide other HSSC groups with outcomes prior to their meetings planned in April 2018. It is proposed that the next meeting includes a two-day workshop to progress several technical tasks, such as the DCEG.

During the meeting, the Chair informed the participants that he had been assigned to a new position and was therefore unable to stand for re-election as Chair. Mr Rogier Broekman (Netherlands) was elected as Chair of the DQWG. Mr Sean Legeer (USA) was re-elected as Vice-Chair. Mr Mike Prince (Australia) accepted to act as Secretary.

Further information concerning the meeting is available on the IHO web site at www.iho.int > Committees & WG > DQWG > DQWG-12.

² *Infrastructure for Spatial Information in Europe.*

1ST MEETING OF THE IHO HSSC PROJECT TEAM ON STANDARDS FOR HYDROGRAPHIC SURVEYS (HSPTI)

Palais de la Porte Dorée, Paris, France, 20-22 June

The Project Team on Standards for Hydrographic Surveys (HSPT), which is tasked by the IHO Hydrographic Services and Standards Committee (HSSC) to prepare a draft 6th Edition of IHO publication S-44 - *Standards for Hydrographic Surveys* - for approval by IHO Member States, held its 1st meeting (HSPT1), organized by the French Hydrographic Office (SHOM), at the Palais de la Porte Dorée, Paris, France from 20 to 22 June under the Chairmanship of Christophe Vrignaud (France). Twenty eight representatives from 13 Member States (Australia, Brazil, Canada, France, Germany, Italy, Netherlands, Norway, Portugal, Republic of Korea, Sweden, United Kingdom and United States), an observer from the International Federation of Hydrographic Societies (IFHS), expert contributors from ARGANS, Fugro, IIC Technologies, iXblue and the University of Southern Mississippi, and the IHO Secretariat attended the meeting. Assistant Director David Wyatt represented the IHO Secretariat.



Participants of the 1st meeting of the HSSC HSPT outside the Palais de la Porte Dorée, Paris

The HSPT received presentations covering *SHOM's MBES/SBES and LIDAR quality management with reference to S-44* (France), *The referencing and use of S-44 for commercial surveys* (iXblue), *CATZOC S-57* (Australia), *The CHS Exclusive Order survey standard* (Canada), *Standards for LIDAR surveys* (Fugro), *Unmanned survey platforms* (Republic of Korea), *Satellite Derived Bathymetry (SDB) and efforts to create data which meets current S-44 standards* (ARGANS), *EMODnet and Crowd-Sourced Bathymetry* (France) and *The relation of S-44 to commercial port surveys* (Australia, on behalf of Precision Hydrographic Services).



1st meeting of the HSSC HSPT in plenary session

The participants identified a number of the limitations in the current version of S-44 and discussed why they were considered to be weaknesses. The HSPT then discussed potential standards frameworks that might address these limitations, and which will be included in the report of the Chair to HSSC. No clear consensus was reached on how to address the identified limitations with very diverse views being expressed, ranging from minimal revision to a

radical new approach. It was proposed that guidance should be requested from HSSC on the appropriate standards framework to develop further. Some members of the HSPT were strongly opposed to inviting the HSSC to direct a particular standards framework that did not have the unanimous support of the HSPT membership. It was agreed that the Chair would seek advice from HSSC on the way forward.

It was agreed that a further meeting would be beneficial once the outcomes and further direction had been received from the next HSSC meeting in November (HSSC9). This would also allow time to receive the results of the Customer Requirements Survey questionnaire, which is being coordinated by the observer from IFHS. The next HSPT meeting (HSPT2) is tentatively planned for the first or second week in July 2018 in Niterói, Brazil, subject to the outcomes of HSSC9.

As there was no volunteer for the position of Secretary, the IHO Secretariat was requested to take on the role of Secretary to the HSPT. This will be undertaken by Assistant Director David Wyatt. Australia agreed to act as the coordinating editor for any revision to S-44, with assistance from Germany. Christophe Vrignaud and Nickolás de Andrade Roscher (Brazil) were confirmed as the Chair and Vice-Chair respectively. All the relevant meeting documents and presentations, as well as the final meeting report, will be available from the HSPT section of the HSSC webpage (http://www.iho.int/mtg_docs/com_wg/HSSC/HSPT/HSPT1/HSPT1.htm) in due course.

**29TH SESSION OF THE ASSEMBLY
OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(IOC)
Paris, France, 21-29 June**

The Assembly is the highest governing body of the Intergovernmental Oceanographic Commission (IOC) of UNESCO. The functions of the Assembly are to consider matters related to managing the regional subsidiary bodies and their programmes, overseeing the ocean research programmes, the ocean observing systems and data management, the regional tsunami warning systems, the coordination of warning and mitigation systems for ocean hazards, the capacity building programme and strategy, sustainable development and governance, administration and management of the IOC and governance of the IHO-IOC GEBCO Project in cooperation with the IHO.

The 29th session of the IOC Assembly was held at the UNESCO Headquarters in Paris, France from 21 to 29 June, preceded by the Fiftieth Session of the IOC Executive Council held on 20 June. The delegations included representatives of the following IHO Member States: Argentina, Brazil, Chile, France, Germany, Russian Federation, Singapore, Thailand and Turkey. Director Mustafa Iptes and Assistant Director David Wyatt represented the IHO. The Assembly was opened by HE Irina Bokova, Director General of UNESCO and Dr Vladimir Ryabinin, the Executive Secretary of the IOC.



***Director General of UNESCO HE Irina Bokova
at the opening session of the IOC Assembly***

General

The Assembly received reports from the Executive Secretary, on the activities of the IOC regional subsidiary bodies – *the sub-commissions for the Western Pacific, the Caribbean and adjacent regions, and Africa and adjacent island States* - the status of the IOC global ocean science report, the world climate research programme and the second international Indian Ocean expedition. The Assembly discussed the UN world ocean assessment and the progress with the Global Ocean Observing System, the Global Climate Observing System and the World Meteorological Organization (WMO)-IOC Joint technical commission for oceanography and marine meteorology (JCOMM). The Assembly acknowledged the role of the IOC in providing technical and scientific support in achieving its commitments towards the 2030 Agenda for Sustainable Development of the United Nations (UN) and the ‘Call for Action’ agreed by the UN Ocean Conference to support the implementation of Sustainable Development Goal-14 by further increasing marine scientific research and encouraging scientific and technological innovation. The Assembly enthusiastically supported the proposed “Decade of Ocean Science for Sustainable Development” and requested the Executive Secretary to highlight the resolution to the UN General Assembly with a view of

establishing the Decade under the auspices of the UN for the period 2021-2030 and to encourage as wide as possible support for the objectives and expected outcomes.

The Assembly also discussed the regional tsunami warning and mitigation systems – *the Pacific (PTWS), the Indian Ocean (IOTWMS) and the North-Eastern Atlantic, the Mediterranean and connected seas (NEAMTWS)* – the tsunami and other coastal hazards warning system for the Caribbean and adjacent regions (CARIBEEWS) as well as the global coordination of warning and mitigation systems for ocean hazards and harmful algal blooms. During the presentation of the reports and subsequent discussions covering the Tsunami and Other Hazards Warning System Working Group (TOWS-WG), the IHO was highlighted by the WMO and the chair of the TOWS-WG as one of the significant partner organizations, particularly with respect to the transmission of warning information. The IHO representative highlighted the on-going work of the International Maritime Organization/IHO World-Wide Navigational Warning Service (WWNWS) with the IOC Secretariat and the TOWS-WG on the development of appropriate standard warning message formats for the dissemination of tsunami warning information to the maritime community. He also noted that the NAVAREA Coordinators were keen to support the efforts of the TOWS-WG through the IHO WWNWS Sub-Committee and would continue to provide advice and guidance on the use of the WWNWS as required. The Chair of the IHO-IOC GEBCO Guiding Committee (GGC) highlighted the importance of comprehensive bathymetric datasets to model tsunami impacts and the speed of propagation of the energy wave. He requested the regional organizations (PTWS, IOTWMS, CARIBEEWS and NEAMTWS) to invite GEBCO representation at their meetings.

During the discussion on the report of the IOC meeting of the Regional Subsidiary Bodies, Turkey noted that the IOC-BLACKSEA and the Oceanographic Data and Information Network for Black Sea (ODIN-BLACKSEA) had been established. Turkey highlighted also that there were commissions, programmes and projects engaged in the region, which included the IHO Mediterranean and Black Seas Hydrographic Commission and the Working Group on the Safety of Navigation in the Black and Azov Seas. Turkey proposed closer collaboration between all these groups to help revive the activities of the IOC-BLACKSEA and the ODIN-BLACKSEA and requested Member States to support these efforts.

Ocean Bathymetry and Capacity Building

The Assembly considered the report of the Chair of the GGC and expressed its support to the increased IOC engagement in the work of GEBCO activities. Following the GEBCO review process conducted in 2015–2016 by the IOC, and the decision of IOC Member States to strengthen IOC's contribution to GEBCO, a budget line was proposed in the draft programme and budget of the Commission and ultimately endorsed by the IOC Assembly. The Chair of the GGC also informed the Assembly of the development of a major initiative entitled “Seabed 2030” supported by the Nippon Foundation designed to boost ocean mapping activities globally, with the ultimate aim to map all undersea features larger than 100 meters. The Assembly also welcomed this initiative and thanked the Nippon Foundation for its support for this new initiative.

The IHO representative highlighted areas of cooperation with IOC, including under GEBCO, and informed that IHO Member States had adopted at the 1st session of the IHO Assembly a resolution on improving the availability of bathymetric data worldwide. He welcomed the IOC budgetary allocation foreseen for GEBCO as a renewal of the fruitful and long-lasting cooperation between IOC and IHO. He also informed the Assembly that the IHO supports the IOC proposal to establish an International Decade on Ocean Science for Sustainable Development and welcomes the Decade on Ocean Science's focus on ocean mapping.

The Assembly discussed the IOC Capacity Development Strategy, including its regional programmes and proposals for the IOC Capacity Development Fund, which was launched in September 2016. The IOC Ocean Literacy activities, which had been undertaken in the last intersessional period, were highlighted including progress on global and regional cooperation. It was noted that further activities would be implemented in the framework of the Ocean Literacy for All initiative presented at the UN Ocean Conference.

The President of the UN General Assembly, HE Peter Thomson, also addressed the 29th IOC Assembly prior to its midday break on the final day.

Discussion Panel on the International Decade of Ocean Science for Sustainable Development

A discussion panel on the International Decade of Ocean Science for Sustainable Development was held during the afternoon session of the Assembly on 22 June moderated by Professor Peter Haugan, IOC Chair. The Secretary-General of the IHO Robert Ward was invited as a panellist. He addressed the Assembly on “How can innovative technology help to close existing knowledge gaps in the open ocean, in coastal areas, from the sea surface down to the ocean floor”. During his speech, the Secretary-General highlighted the re-vitalising of crowd-sourced bathymetry and the use of ships of opportunity which is considered probably one of the most significant and cost effective ways of getting at least some of the much-needed environmental data that everyone wants to collect. He also emphasized that much important data has already been collected, but remains archived and undiscoverable since it has served its initial purpose. This data needs to be made available. He emphasized that the IHO is particularly keen to be part of the Decade of Ocean Science.



The Secretary-General of the IHO Robert Ward at the panel discussion.

Office Bearers

The Assembly unanimously re-elected Prof Peter Haugan of Norway as Chair of the IOC for 2018 to 2019.

Next Sessions

The next session of the IOC Assembly (Assembly-30) is scheduled from 26 June to 4 July 2019 with the 51st and 52nd Executive Councils to be held 2-6 July 2018 and 25 June 2019 respectively. All documents of the 29th session of the IOC Assembly will be available from the IOC of UNESCO website.

JULY

20TH CONFERENCE OF THE MEDITERRANEAN AND BLACK SEAS HYDROGRAPHIC COMMISSION Herceg Novi, Montenegro, 4-6 July

The 20th Conference of the Mediterranean and Black Sea Hydrographic Commission (MBSHC) was held in Herceg Novi, Montenegro from 4 to 6 July, hosted by the Institute of Hydrometeorology and Seismology of Montenegro (IHMS). The Conference was chaired by Ingénieur général Bruno Frachon, Director General of the French Hydrographic Service (Shom). A total of 44 representatives from 17 Member States of the MBSHC (Algeria, Croatia, Cyprus, France, Georgia, Greece, Italy, Malta, Monaco, Montenegro, Romania, Russian Federation, Slovenia, Spain, Tunisia, Turkey, Ukraine) and two Associate Member States (United Kingdom and United States of America) participated in the Conference. Albania, Norway, the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), the Intergovernmental Oceanographic Commission (IOC) of UNESCO, the Mediterranean Science Commission (CIESM), IC-ENC and PRIMAR, as the two Regional ENC Coordinating Centres (RENC), were represented as observers. Three stakeholders from industry participated as invited expert contributors. A diplomat from the Embassy of the Republic of Korea in Montenegro attended part of the meeting at the invitation of the Director of IHMS. The IHO Secretariat was represented by Director Mustafa Iptes and Assistant Director Yves Guillam.

At the beginning of the Conference, Captain Luigi Sinapi, Director of the Italian Hydrographic Institute (IIM), was elected as Vice-Chair of the MBSHC.

The MBSHC received national reports from Member States and Associate Member States and the report of the IHO Secretariat. Director Iptes reported on the IHO work programme in general and the activities of the Organization during the intersessional period that impact Regional Hydrographic Commissions, including the main outcomes of the IHO Assembly and of the 9th meeting of the Inter-Regional Coordination Committee. The IHO representatives also provided informative presentations and updates on the cooperation with the International Maritime Organization (IMO), on capacity building matters, on the development of standards, and on the evolution of the IHO information management system using GIS³ layers derived from the country information database maintained by the Secretariat. Participants were encouraged to consider the use of CATZOC values extracted from the official charts as a way of assessing the status of hydrography and charting in the region. They were also invited to liaise with their national representatives to the UN-GGIM⁴ in order to support the growing interest in the maritime component of geospatial information and the likely establishment of a UN-GGIM Marine Geospatial Information Working Group. Following a presentation by Spain on the status of hydrographic surveying in the region (based on the information in IHO publication C-55 – *Status of surveying and charting worldwide*), it was recommended to consider a more dynamic, geographic and interoperable GIS approach in the future, if possible and resources permitting.

It was the first participation of the Director General of the CIESM in a Conference of the MBSHC since the signature of the Memorandum of Understanding with the IHO in March 2017. His presentation was very welcome and was followed by a presentation from Malta focusing on initiatives of the European Union (EU) in which hydrographic offices of the MBSHC might consider to be more directly involved. The coordinated participation of MBSHC representatives in various important European maritime events, at least for raising the IHO profile and at best

³ Geographic Information System

⁴ United Nations Committee of Experts on Global Geospatial Information Management

for capturing some funding, remains a matter of concern for the IHO-EU Network Working Group and its focal point in the region, which is Greece.

One of the remaining and core activities in the Commission is the establishment of agreed INT paper charts and ENC schemes. The MBSHC International Chart Coordination Working Group (ICCWG) held a separate half-day meeting during the Conference period, chaired by the Region F Chart Coordinator (France), to prepare recommendations and decisions to be endorsed in plenary session the day after. Well prepared by the Coordinator as a follow-up of the special meeting that took place as a side event of the IHO Assembly in April, the meeting went very well:

- The new Terms of Reference and Rules of Procedure for the Region F ICCWG were approved;
- The Conference agreed to simplify the access to the Region F ICCWG webpage on the IHO website;
- The Region F INT chart database was updated after fruitful discussions leading to several agreements between the relevant parties;
- The methodology, supported by the RENCs, for assessing ENC overlapping data and their impact on safety of navigation, was agreed;
- The MBSHC also agreed that it was necessary to prepare transition plans (to be endorsed by the MBSHC) every time that new ENC were produced that covered existing INT chart areas but not produced by the relevant INT chart Producer. Decision 10 of the IHO Assembly on the consistency between products was reiterated.



Participants to the MBSHC20 Conference

Director Iptes provided a general overview of the IHO capacity building activities. It was followed by the report of the representative of Turkey, as Capacity Building (CB) Coordinator for the region. All participants were invited to apply the CB procedures so that requirements can be addressed by the CB Sub-Committee in consistent manner.

A report on Maritime Safety Information (MSI) activities in NAVAREA III was presented by Spain and reviewed by the Commission. The recent activities of the Working Group for the Safety of Navigation in the Black and Azov Seas (BASWG) was presented by the Chair of BASWG (Turkey) and potential developments in the hydrographic domain in the Caspian Sea region were discussed.

The Member States of the MBSHC having a seat at the IHO Council considered the provisional agenda of the Council. They met together in the margins of the Conference to coordinate their views and reviewed the available documents.

At the end of the Conference, Captain Luigi Sinapi took over as Chair of the MBSHC. The 21st Conference of the MBSHC is planned to take place in Cádiz, Spain, from 18 to 20 June 2019, subject to confirmation.

All the documents of the Conference are posted at the MBSHC section of the IHO website.

13TH SESSION OF THE IMO / ITU EXPERTS GROUP

London, United Kingdom, 10-14 July

The International Telecommunication Union (ITU) is a specialized agency of the United Nations (UN) which is responsible for issues that concern information and communication technologies, including aeronautical and maritime navigation. The Experts Group (EG) established jointly by the International Maritime Organization (IMO) and the ITU consists of representatives active in the IMO and the ITU in relation to maritime communications. The function of the IMO/ITU EG is to advise on the development of future requirements for maritime radiocommunications taking into account the operational needs as defined by the IMO and the regulatory needs as defined by the ITU. The 13th session of the IMO/ITU EG (IMO/ITU EG13) was held at the IMO Headquarters in London, United Kingdom, from 10 to 14 July under the chairmanship of Mr Christian Rissone (France). Assistant Director David Wyatt and Mr William Van-Den-Bergh (UK Hydrographic Office and Chair, IMO NAVTEX Coordinating Panel) represented the IHO.



13th session of the IMO-ITU EG

The Group addressed a number of topics of direct interest to IHO Member States resulting from discussions at the 97th and 98th sessions of the IMO Maritime Safety Committee (MSC97 and MSC98), 4th session of the IMO Sub-committee on Navigation, Communications, and Search and Rescue (NCSR4) and in preparation for the ITU World Radiocommunication Conference 2019 (WRC-19). The IHO made a number of interventions, which were mainly to clarify misunderstanding of the Worldwide Navigation Warning Service (WWNWS) processes, NAVAREA and METAREA Coordinator responsibilities and the nature of Maritime Safety Information (MSI).

After considering the outcomes of NCSR4, MSC97 and MSC98, the participants focused on further developing the IMO position on the WRC-19 agenda items relating to maritime services. In particular the participants addressed the modernization of the Global Maritime Distress and Safety System (GMDSS), and expressed concerns over the inclusion of the new system for maritime data broadcasting NAVDAT (Navigational Data) in the IMO proposal that is currently being developed. It was agreed that the inclusion of possible frequencies to be used for NAVDAT should be considered for WRC-23.

It was noted that the Modernization Plan of the GMDSS had been completed after the endorsement and approval given at MSC98. The majority of the meeting was then spent on developing the related preliminary draft revisions of SOLAS Chapters III and IV. There was considerable discussion on whether to expand the scope of application of Chapter IV to include all ships on international voyages, regardless of tonnage. No consensus was reached and it was therefore agreed that the current scope of application should be retained. A comprehensive review was conducted with numerous amendments and revisions proposed, including the revision and development of a number of definitions for terms such as *bridge-to-bridge communications*, *Enhanced Group Call (EGC)*, *GMDSS*, *Recognised mobile satellite service* and *Sea areas A3 and A4*. No final agreement was reached on a new definition of *Security-related*

communications, which will be further discussed during NCSR5 rather than in the Correspondence Group (CG) on the Modernization of the GMDSS established by NCSR4. The IHO noted that this was already included within the definition of MSI in the Joint IMO/IHO/WMO Manual on MSI. All these definitions will be developed further by the CG for submission to NCSR5.

The Group developed a preliminary draft work plan for the related and consequential amendments to other existing instruments. The draft work plan included resolution MSC.191(79) – Performance Standards for the presentation of navigation-related information on shipborne navigational displays, resolution A.801(19) as amended by MSC.199(80) - Provision of radio services for the Global Maritime Distress and Safety System, (GMDSS), Resolution A.707(17) - Charges for Distress, Urgency and Safety Messages through the Inmarsat System, Resolution MSC.306(87) - Revised performance standards for Enhanced Group Call (EGC) equipment, and Resolution MSC.68(68), Annex 3 - Performance Standards for MF/HF Radio Installations Capable of Voice Communication, Narrow Band Direct Printing and Digital Selective Calling – all of which impact on the work of a number of IHO committees, sub-committees and working groups. It is intended that the first draft revisions will be submitted to NCSR5 for further consideration.

IHO Member States are encouraged to engage with the future work of the Expert Group and the Correspondence Group.

In closing the meeting, Mr Ashok Mahapatra, Director of IMO Maritime Safety Division, noted the importance of the work being undertaken by the EG and noted the positions developed by the EG regarding the maritime aspects of communication that would be presented to the MSC through the NCSR. He acknowledged the progress on revising SOLAS Chapters III and IV and the preliminary work for the related and consequential amendments to other existing instruments.

In conclusion, he drew attention to his retirement at the end of the year and therefore his last involvement with the EG.

The meeting report and associated documents will be available in the NCSR section of the IMODOCS website in due course.

The next session of the IMO/ITU EG (IMO/ITU EG14) is scheduled from 3 to 7 September 2018 at the IMO Headquarters.

HIGH-LEVEL MINISTERIAL AND SCIENTIFIC EVENT A NEW ERA OF BLUE ENLIGHTENMENT

Lisbon, Portugal, 12-14 July



The European Commission (EC) held a high-level ministerial and scientific event from 12 to 14 July in Lisbon, Portugal, to celebrate the launch of the South Atlantic Flagship Initiative between the European Union, Brazil and South Africa, aiming to better understand and protect marine ecosystems and the link between oceans and climate.

The event was hosted by Mr Carlos Moedas, European Commissioner for Research, Science and Innovation and attracted about a hundred participants, mainly from Europe, Brazil and South Africa but also from Canada and the United States. Director Gilles Bessero represented the IHO. A representative of the Hydrographic Institute of Portugal was also present.

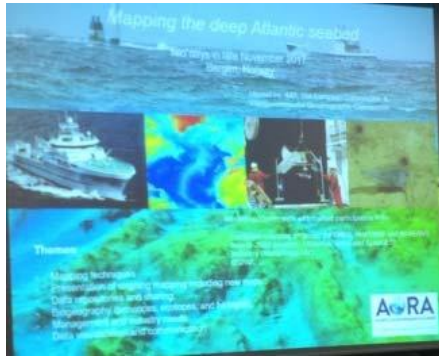
The event was organized in three segments. The first day was dedicated to three sets of parallel sessions on current projects related to observing the Atlantic Ocean. The morning session of the second day was devoted to a ministerial segment and was concluded by the signature of the “Belém Statement on Atlantic Research and Innovation Cooperation” by Commissioner Moedas, Ms Naledi Pandor, Minister of Science and Technology, South Africa and Mr Gilberto Kassab, Minister of State for Science, Technology, Innovations and Communications, Brazil. The ministerial event was followed by a combination of short “project showcases” and roundtable discussions that took up the afternoon session of the second day and the third day.



Opening of the ministerial segment by European Commissioner Carlos Moedas

The sessions provided an overview of the “dizzying array”, in one of the rapporteurs’ words, of on-going projects related to the Atlantic that address a variety of topics including climate change, eco-system-based management, ocean observation and forecasting systems, food security, fisheries management and aquaculture, ocean technologies, ocean literacy, and investment opportunities. Several projects referred to the pre-existing Atlantic Ocean Research Alliance (AORA) established under the Galway Statement signed in 2013 between the European

Union (EU), Canada and the United States and to Horizon 2020, the EU Research and Innovation Programme 2014-2020.



Director Bessero participated in the roundtable discussion on “Enhancing Ocean Observations in the Atlantic: from Antarctica to the Arctic”. He highlighted the underpinning role of hydrography and seabed mapping and the lack of survey data in many areas of the seas and oceans, including the Atlantic Ocean. The activities of the AORA Atlantic Seabed Mapping International Working Group were mentioned on several occasions during the event.

In their summary of the key messages, the rapporteurs of the different sessions highlighted the importance of improving our knowledge of the Atlantic, the need for open access to data, the role of marine spatial planning, the importance of capacity building, the need to engage with the general public and the value of multidisciplinary initiatives.

In his concluding remarks, the representative of the EC Directorate-General for Research and Innovation expressed the wish to hold an implementation meeting of the Belém Statement in early 2018, possibly in Salvador, Brazil, and called for merging the different existing initiatives into an “All Atlantic Alliance”.

All the documents related to the event should be made available on the website of the European Commission shortly.

IALA-IHO COORDINATION MEETING

Saint-Germain-en-Laye, France, 18 July

Under the framework of the Cooperation Agreement between the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the IHO, a coordination meeting was held at the IALA Headquarters in Saint-Germain-en-Laye, France on 18 July. The meeting was attended by eight IALA representatives and five IHO representatives. The IHO delegation included Mr Jens Schröder-Fürstenberg, Chair of the Nautical Information Provision Working Group, Germany, Mr Yves Le Franc, Chair of the S-124 Correspondence Group, France and Ms Julia Powell, Chair of the S-100 Working Group, United States who participated by web conference. Director Gilles Bessero and Assistant Director Anthony Pharaoh represented the IHO Secretariat.

The meeting was welcomed by Mr Michael Card, IALA Deputy Secretary-General and was chaired by Mr Hideki Noguchi, chair of the IALA E-Navigation (ENAV) Committee.

The main objective of the meeting was to discuss and coordinate the contribution of both organizations in the development and implementation of the concept of Maritime Service Portfolios (MSP) in accordance with the related output recently agreed by the International Maritime Organization (IMO) and in preparation of the first meeting of the IMO/IHO Harmonization Group on Data Modelling (HGDM) to be held from 16 to 20 October at the IMO Headquarters in London, United Kingdom.

Following a short overview of the structure and objectives of both organizations, the meeting identified the technical areas where cooperation was considered essential and reviewed the following topics:

- the possible overall architecture of the MSPs;
- the harmonization of related S-100 based product specifications;
- the development under the S-100 framework of a naming scheme that can uniquely identify any maritime resource on a global scale (“marine resource name”);
- the development under the S-100 framework of provisions for data streaming; and
- the portrayal of aids to navigation on charts.

The meeting agreed on related follow-on actions. It was decided in particular to develop a joint IHO-IALA submission to the HGDM based on the draft MSP guidelines developed by the IALA ENAV Committee and on the draft MSP mapping developed by the IHO NIPWG. The participants concurred that regular coordination meetings, possibly on an annual basis, would be useful, in addition to cross-participation in the relevant subordinate organs of both organizations.

67TH SESSION OF THE IMO TECHNICAL COOPERATION COMMITTEE (TC 67)

London, UK, 17 - 19 July

The 67th session of Technical Cooperation Committee of the International Maritime Organization (IMO-TC 67) was held at the IMO Headquarters in London, UK, from 17 to 19 July. Mr. Zulkurnain Ayub (Malaysia) chaired the meeting. The IHO was represented by Assistant Director Alberto Costa Neves.

In his opening address, the IMO Secretary-General, Mr Kitack Lim, highlighted the linkage between IMO's technical assistance work and the United Nations (UN) 2030 Agenda for Sustainable Development, the arrangements for financing an effective and sustainable integrated technical cooperation programme and the theme of World Maritime Day 2017 centered on "Connecting Ships, Ports and People". This theme focuses on ocean governance, improving the safety of life at sea, ensuring the protection of the marine environment and contributing to sustainable development, to which the IHO is also a major player by providing background information for ocean knowledge.

The meeting reviewed the achievements in delivering the 2016 component of the Integrated Technical Cooperation Programme (ITCP), with 237 national and regional activities training 2 921 people worldwide, complemented by 22 graduating fellows who qualified through the IMO global maritime training institutions of the World Maritime University and the International Maritime Laws Institute. Notably, no joint activity with the IHO was delivered in 2016, for the first time in recent years.

The IHO had submitted a document recalling the work done by the IHO for the benefit of IMO Member States that are not members of the IHO in support of fulfilling their obligations arising from SOLAS. It also indicated a change in eligibility criteria such that the level of capacity-building support available from the IHO for those IMO Member States that are not members of the IHO has been reduced. The document submitted to IMO/TC 67 is available at:

http://www.iho.int/mtg_docs/CB/CBM/Papers/papers.html

The meeting also considered the report of the Caribbean Regional Senior Maritime Administrators' Workshop that invited the IMO to consider facilitating the participation of the IHO and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) at the next meeting of the Senior Maritime Administrators of the Caribbean States. In addition the report requested the Caribbean States to consider inviting the IHO to assist in the establishment of national frameworks for hydrographic services so as to meet the mandatory obligations of SOLAS Chapter V - Regulation 9, highlighted the need to consider the feasibility of the establishment of a regional hydrographic office and encourages States to become members of the Meso-American - Caribbean Sea Hydrographic Commission (MACHC) and the IHO. During the discussions, Antigua and Barbuda specifically acknowledged the contribution of the IHO in the Caribbean Region.

The ITCP for 2018-2019 was approved by the Committee with a funding requirement of US\$23.9 million. This will require mobilization of external funding for its realization. To achieve this the Secretary-General has established a new post in the Technical Cooperation Division for resource mobilization and the development of partnerships to strengthen the capacity to engage with donor agencies and technical cooperation partners. The new officer is now the main liaison with the IHO for pursuing common objectives under the UN "Delivering as One" concept, which guides the work of the Joint IHO-IMO-IOC-WMO-IALA-IAEA-FIG Capacity Building group. The approved ITCP for 2018-2019 contains one regional training course on hydrography/cartography in collaboration with the IHO to be delivered to the Arab States and Mediterranean region.

The Committee was updated on the status of the Country Maritime Profile (CMP) and the plans to review, revise, restructure and redesign the CMP module to ensure its user-friendliness, effectiveness, efficient data populating and updating from publicly available sources. The status and development of the IMO Member State Audit Scheme (IMSAS) was also reviewed by the Committee. Both the CMP and the IMSAS are key elements for the effective implementation of the ITCP.

Draft Assembly resolutions were endorsed on "The linkages between IMO's technical assistance work and the 2030 Agenda for Sustainable Development", "Guiding principles of IMO's Integrated Technical Cooperation Programme in support of the 2030 Agenda for Sustainable Development" and "Financing and partnership arrangements for an effective and sustainable ITCP". These Assembly resolutions, subject to approval, will become the framework to guide the work of the Committee. The critical role played by the IMO Regional Presence Scheme in the delivery of the ITCP was positively acknowledged by the Committee which indicates that the IHO and the IMO should continue to pursue cooperation at regional level.

During the meeting the IHO representative had numerous fruitful informal discussions with the IMO Secretariat Staff and with delegates. Delegates from Angola, Antigua and Barbuda, Bahamas, Bolivia, Marshall Islands and Seychelles were briefed on the importance of hydrography for maritime infrastructures. Coordination was progressed with the delegates from the *Comisión Centroamericana de Transporte Marítimo* (COCATRAM) and IALA in support of the forthcoming technical visits to the Meso-America and Caribbean Sea Hydrographic Commission region. A side meeting was held between the IMO, IALA and a representative from the Embassy of Sudan in London who contacted the IMO seeking support for a joint technical visit to the country in order to establish a roadmap for maritime development, including nautical charts and aids to navigation.

The Committee re-elected Mr. Zulkurnain Ayub (Malaysia) and Mr. Laurent Parenté (Vanuatu) as Chair and Vice-Chair for 2018. The next session of the Technical Cooperation Committee is scheduled to take place from 18 to 20 June 2018 at the IMO Headquarters.



The Chair of the IMO Technical Cooperation Committee addresses the meeting.

17TH MEETING OF THE NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION

Cairo, Egypt, 17-20 July



Director Iptes addressing the opening ceremony of the NIOHC17

The 17th meeting of the North Indian Ocean Hydrographic Commission (NIOHC) was held in Cairo, Egypt, from 17 to 20 July, under the chairmanship of Commander Ahmed Hafez from the Egyptian Navy Hydrographic Department. Participants were welcomed at the opening ceremony by Vice Admiral Ahmed Khaled, Commander in Chief of the Egyptian Navy, in the presence of Dr Hesham Arafat, Minister of Transportation, and Vice Admiral Mohab Mamesh, Chairman of the Suez Canal Authority.

NIOHC Member State representatives from Bangladesh, Egypt, India, Myanmar, Saudi Arabia, Sri Lanka, Thailand and the United Kingdom (UK) attended the meeting together with representatives of Associate Members from France, Mauritius, Oman and the United States. The Russian Federation and Indonesia were represented as Observer States. Representatives of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) and several industry stakeholders also attended as invited observers. Director Mustafa Iptes and Assistant Director David Wyatt represented the IHO Secretariat.

The NIOHC received reports from Member States, Associate Member States and the IHO Secretariat as well as summary reports on the last meetings of the IHO Hydrographic Services and Standards Committee and the Inter Regional Coordination Committee and a comprehensive update on the activities of the GEBCO Project, including the establishment of the *Seabed 2030 project*. The meeting also received reports on progress and issues related to the work of the IHO Marine Spatial Data Infrastructures Working Group, relevant activities that had taken place in the International Maritime Organization, an up-date from the NAVAREA VIII coordinator and the outcomes of the 8th meeting of the World-Wide Navigational Warning Service Sub-Committee.

Director Iptes reported on the IHO Work Programme and the Organization's activities during the previous year, including a comprehensive report on the first session of the IHO Assembly. As at previous meetings, time was devoted to capacity building (CB) and regional requirements. A comprehensive CB plan was developed for submission to the 16th meeting of the IHO Capacity Building Sub-Committee (CBSC16) next year. Assistant Director Wyatt provided a progress update on the IHO crowd-sourced bathymetry programme, which generated numerous comments and questions.

The meeting included a number of presentations from industry representatives. These highlighted technologies and training opportunities available to the region. Industry representatives were keen to emphasise their willingness to engage with the NIOHC and its members to assist the development of hydrographic and cartographic capability within the region.



NIOHC17 in plenary session

next period. India volunteered to host the 18th meeting of the Commission in Goa, India, with proposed dates being 9-12 April 2018. It was agreed to hold an INT Chart Coordination Working Group meeting prior to NIOHC18.

All the documents of the meeting are posted at the NIOHC section of the IHO website.

Indonesia applied for full membership of the NIOHC. It was confirmed that Indonesia had territory within the limits of the INT Chart Region J and was therefore eligible for membership. As a result, Indonesia was unanimously welcomed as a full member of the NIOHC.

India, the current Vice-Chair of the NIOHC, will assume the Chair of the NIOHC within the next four months in accordance with the Statutes of the Commission. The NIOHC elected the UK to assume the Vice-Chair position for the

118TH SESSION OF THE IMO COUNCIL London, United Kingdom, 24-27 July



Secretary-General Ward appears on the big screen while presenting the IHO Report to the IMO Council

The Council of the International Maritime Organization (IMO) held its 118th session at the IMO Headquarters in London, United Kingdom from 24 to 27 July. The Secretary-General, Robert Ward represented the IHO at the session when reports on the status of conventions and membership of the IMO were considered.

Based on a paper submitted by the IHO and a short introductory statement made by the Secretary-General on the status of membership of the IHO, the IMO Council reaffirmed its recommendation that IMO Member States that are not Member States of the IHO should give favorable consideration to joining. Greece, Finland and Malta commented specifically to encourage other IMO Member States to join the IHO. Liberia indicated its intention to join the IHO in the near future.

1ST MEETING OF THE IHO HYDROGRAPHIC DICTIONARY WORKING GROUP (HDWG1)

IMarEST Headquarters, London, United Kingdom, 25-26 July

The Hydrographic Dictionary Working Group (HDWG), which is tasked by the IHO Hydrographic Services and Standards Committee (HSSC) to review and propose updates to the hydrographic definitions contained in IHO publication S-32 - *Hydrographic Dictionary*, held its 1st meeting (HDWG1) at the Headquarters of the Institute of Marine Engineering, Science and Technology (IMarEST), London, United Kingdom (UK) from 25 to 26 July under the chairmanship of Mr Jean Laporte (France). Four representatives from three Member States (Argentina, France and United States), and the IHO Secretariat attended the meeting. Assistant Director David Wyatt represented the IHO Secretariat.

The participants reviewed the Terms of Reference, the Business Rules for the HDWG and its Work Plan for 2018-2019, developing draft proposals for submission to the 9th meeting of the HSSC (HSSC9) in November. Significant time was devoted to discussing a proposed new structure and database application developed by the IHO Secretariat; these discussions were led by Assistant Director Anthony Pharaoh and Technical Standards Support Officer Jeff Wootton, via remote link from the IHO Secretariat. It was agreed that these proposals would be developed further by the United States and the IHO Secretariat as part of a database solution comprising an S-32 Hydrographic Dictionary Registry. It

was also agreed that the long-planned comprehensive review of the content of S-32 would be undertaken over the next two years by France and Argentina with those terms identified for removal being subsequently considered by the full HDWG.

It was agreed that a further meeting would be beneficial once the outcomes and further direction had been received from the HSSC9. It was agreed that there was a need for the participation of additional members, who had experience and knowledge in database applications. It was felt that once a new database structure had been developed then the experience base of the WG should move further towards hydrography and cartography in order to undertake the task of reviewing and maintaining the terms and definitions in the database.

All the relevant meeting documents and presentations, as well as the final meeting report, will be available from the HDWG section of the IHO website

(https://www.iho.int/mtg_docs/com_wg/CHD/HDWG1/HDWG1.htm) in due course.



*Participants of the 1st meeting of the HDWG
outside the Headquarters of IMarEST, London*

7TH SESSION OF THE UN COMMITTEE OF EXPERTS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

New York, USA, 31 July - 4 August



The seventh Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) took place at the UN Headquarters in New York, USA from 31 July to 4 August.

The principal purpose of the UN-GGIM is to play a leading role in setting the agenda for the development of global geospatial information management and to promote the use of geospatial information in addressing key global challenges, particularly taking into account the role of geospatial data in monitoring and achieving the Sustainable Development goals agreed under the UN 2030 Agenda for Sustainable Development. The UN-GGIM reports to the UN Assembly via the UN Economic and Social Council (ECOSOC).

Over 300 participants representing nearly 90 UN Member States and more than 20 international observer organizations, including the IHO, participated in the Session. Secretary-General Robert Ward represented the IHO, assisted by the Secretary of the IHO Marine Spatial Data Infrastructures Working Group (MSDWG), Mr John Pepper. Unfortunately, national hydrographic services were not well represented among the delegations.



The seventh Session, which began on 3 August, was preceded by 30 associated side meetings held over the preceding two days when regional UN-GGIM meetings and discussions in support of several working groups took place. The IHO Secretariat, in collaboration with the Secretariat of the UN-GGIM and with the contribution of Mr John Nyberg, the Head of the Charting Division of the Office of Coast Survey of NOAA, mounted a poster display and organized a well-attended panel discussion on marine geospatial information as one of the side events.

Several items on the agenda of UN-GGIM7 were of direct relevance to IHO Member States, particularly in relation to the contribution of hydrographic data and services to national and regional spatial data infrastructures.

Use of Standards. Progress in the development and maintenance of relevant IHO standards was presented to the Committee as part of a combined report of the IHO, the Technical Committee TC211 (Geographic Information / Geomatics) of the International Organization for Standardization (ISO) and the Open Geospatial Consortium (OGC). The Committee expressed its thanks for the continuing work of the IHO, ISO/TC211 and OGC with respect to standards, harmonization and implementation, and the usefulness of the two reference documents on standards that were produced by the three organizations in the past. The Committee agreed with the recommendation that the documents should undergo periodic review in order to ensure that they provided the most current guidance and references on applicable standards for spatial data infrastructures (SDI). The Committee agreed to seek the views of its Member States

on how they were using the reference documents on standards as a means of highlighting the fundamental importance of the adoption and use of geospatial standards to enhance data interoperability and access in their countries. This would be a precursor to the next review cycle.

Fundamental Geospatial Data Themes. The Committee reviewed the progress being made by its working group (WG) on global fundamental geospatial data themes. The themes are to be considered as the minimum list of geospatial data themes that all States should be addressing as part of their SDI. As a result, the Committee of Experts adopted a list of 13 themes, which includes *elevation and depth* as one of the themes. The Committee directed the WG to develop more detailed definitions for each theme. The IHO Secretariat has already contributed to preliminary work on developing a description for the theme of “elevation and depth”.

Marine Geospatial Information. Marine Committee’s agenda for the first time this year. Under this agenda item the Committee agreed to establish a UN-GGIM Marine Geospatial Information Working Group (UN-GGIM: MGIWG). The WG will provide input to the Committee to support its Member States in developing national policy, strategic priorities, decision-making and the monitoring of global developments in relation to their spatial data infrastructures and marine geospatial information management.



The view from the IHO Secretary-General’s desk at UN-GGIM-7

In addition to encouraging the Member States to involve the relevant subject matter experts in their national delegations, the terms of reference for the UN-GGIM: MGIWG specifically and uniquely allocate an Observer position to the IHO. The IHO MSDIWG has an obvious and direct relevance to this very important development in the structure and the agenda of the UN-GGIM. This development reinforces the role of the MSDIWG and the priority that is placed on MSDI in the IHO Work Programme.

Copies of all the papers and report of the meeting are available on the GGIM website at: <http://ggim.un.org>.

The eighth Session of UN-GGIM will take place at the UN Headquarters in New York during the first week of August 2018.

AUGUST

RECOGNITION CEREMONY FOR THE MASTER OF SCIENCE DEGREE IN HYDROGRAPHIC SCIENCE UNIVERSITY OF SOUTHERN MISSISSIPPI

Long Beach, Mississippi, United States of America, 3 August

Two students sponsored by the Republic of Korea (ROK) through the IHO capacity building programme successfully completed a Master of Science (MS) Degree in hydrographic science at the University of Southern Mississippi (USM), United States, in August. The two successful students are from the national hydrographic services of Malaysia and Philippines. They are part of the 18th graduating class of the USM degree that comprises the two IHO capacity building programme students, nine other students from the United States and a doctoral student from Nigeria. It is the fourth year that the ROK has funded participants on the programme.

The MS degree meets the Category A recognition requirements of the International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) operated jointly by the Fédération Internationale des Géomètres (FIG), the International Hydrographic Organization (IHO) and the International Cartographic Association (ICA).

Formal graduation takes place at the end of the civil year; however, a recognition ceremony is traditionally held shortly after the completion of the course to mark the achievements of all the graduands before they return to their host organizations to take up operational roles in hydrography.

The recognition ceremony for the class of 2017 was held at the Gulf Park Campus of the USM in Long Beach, Mississippi, on 3 August in the presence of Dr Rodney D. Bennett, President of the USM. The ceremony was introduced by Mr Maxim F. van Norden, Coordinator, Hydrographic Science Programmes, USM. Opening remarks were provided successively by Dr Karen S. Coats, Dean of the USM Graduate School, Captain (USN) Ronald Shaw, representing Rear Admiral John Okon, Commander, Naval Meteorology and Oceanography Command, Director Gilles Bessero, representing the IHO, and Mr Yong Huh, Director, Oceanographic Forecast Division, Korea Hydrographic and Oceanographic Agency (KHOA). A keynote address was delivered by Dr Steven R. Moser, Provost and Senior Vice President for Academic Affairs, USM. The ceremony was concluded with the presentation of the Hydrographer of the Navy Education Award and Category A Certificates.

The class of 2018, starting at the end of August 2017, will include one IHO capacity building programme student. It is expected that the Republic of Korea and the IHO will be able to offer further sponsored places in subsequent classes. Prospective applicants should make early preparations to ensure that they have the necessary qualifying credentials, particularly proficiency in English language, and academic recognition, well in advance of the next call for application, which is likely to occur in the autumn.



Graduands with their certificates of recognition

Left to Right:

Mr Yong Huh, Director, Oceanographic Forecast Division, KHOA

Lt Abdul Halim bin Ahmad Nordin, Royal Malaysian Navy, National Hydrographic Centre

*Lt Gilbert Avila Alviola, National Mapping and Resource Information Authority, Hydrography Branch,
Philippines*

Mr Gilles Bessero, Director, IHO

23RD SESSION OF THE INTERNATIONAL SEABED AUTHORITY Kingston, Jamaica, 31 July to 18 August



The International Seabed Authority (ISA) held its twenty-third session at its headquarters in Kingston, Jamaica from 31 July to 18 August. The session included meetings of the ISA Assembly, the ISA Council, and several subsidiary organs.

Secretary-General Robert Ward represented the IHO during the second week of the session, when the Assembly and the Council met for the first time in the session.

Secretary-General Ward addressed the Assembly, where he introduced a background report on the IHO that included an overview of the purpose and the objectives of the IHO and its relevance to the ISA. He particularly emphasised the relevance of the IHO's aim to ensure that the world's seas and oceans are properly mapped so as to benefit all human activity that takes place in, on or under the sea. He pointed out the relevance of IHO and ISA activity in the context of the UN 2030 Agenda for Sustainable Development and the achievement of Sustainable Development Goal 14 covering the oceans, seas and marine resources.



ISA Headquarters, Kingston, Jamaica

He informed the Assembly of the ISA that the IHO has well-established globally implemented geospatial data standards for depth and associated information and that it has very effective levels of liaison and collaboration with the data sensor manufacturers and the marine data industry more generally. He reminded the Assembly that the IHO is recognized as a competent technical authority to all the relevant intergovernmental organizations dealing with maritime data and information, such as the UN-GGIM⁵, UN-DOALOS⁶, UNESCO-IOC⁷, IMO⁸, and WMO⁹, and now most recently with ISA under the auspices of the agreement between the two Organizations that was signed last year.



Secretary-General of the ISA

He concluded by saying that the IHO stands ready to collaborate with the ISA, to ensure that appropriate data transfer protocols and data exchange standards are put in place for depth data to ensure that both Organizations can provide effective support towards the achievement of the UN Sustainable Development Goal for the Ocean and also to serve the common interests of all mankind in relation to the use and understanding of the ocean environment.

In addition to calling on the Secretary-General and the Deputy Secretary-General of the ISA, the Secretary-General took the opportunity to discuss with the relevant staff how the depth data that is submitted to the ISA "for the benefit of mankind as a whole" can be reflected in the IHO Data Centre for Digital Bathymetry (DCDB) and used by the IHO-IOC programme of the General Bathymetric Chart of the Oceans (GEBCO) and others. As a result, a plan of action was developed that will bring together the appropriate Secretariat Staff of the IHO and the ISA and the Director of the DCDB to achieve this.

⁵ UN-GGIM: United Nations Committee of Experts on Global Geospatial Information Management

⁶ UN-DOALOS: United Nations Division for Ocean Affairs and the Law of the Sea

⁷ UNESCO-IOC: Intergovernmental Oceanographic Commission of UNESCO

⁸ IMO: International Maritime Organization

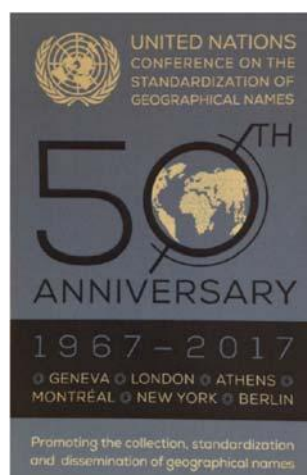
⁹ WMO: World Meteorological Organization

30TH SESSION OF THE UNITED NATIONS GROUP OF EXPERTS ON GEOGRAPHICAL NAMES AND 11TH CONFERENCE OF THE UNITED NATIONS ON THE STANDARDIZATION OF GEOGRAPHICAL NAMES New York, United States of America, 7 – 18 August

The 30th Session of the United Nations Group of Experts on Geographical Names (UNGEGN-30) and the 11th Conference of the United Nations on the Standardization of Geographical Names (UNCSGN-11) were held at the United Nations Headquarters, New York, United States of America, from 7 to 18 August. The national delegations from China, India and the Republic of Korea included representatives from their national hydrographic services. The IHO Secretariat was represented by Assistant Director Yves Guillaum, during the first week.

The UNGEGN-30 event was opened by Mr William Watt (Australia), Chair of UNGEGN, who stressed the technical nature of the work of the Expert Group and by Mr Stefan Schweinfest, Director of the UN Statistics Division. The UNGEGN is composed of some 150 experts from 52 countries, organized into 24 linguistic/geographical divisions. One of the main goals of the UNGEGN is to emphasize the importance of the standardization of geographical names at the national and international levels and to demonstrate the benefits of such standardization. Within the UNGEGN, 10 working groups have been created to carry out special tasks, such as the development of country names and toponymic data file standards, training courses in toponymy¹⁰, romanization systems, exonyms, the evaluation and implementation of geographical names standardization, toponymic terminology and the production of international gazetteers.

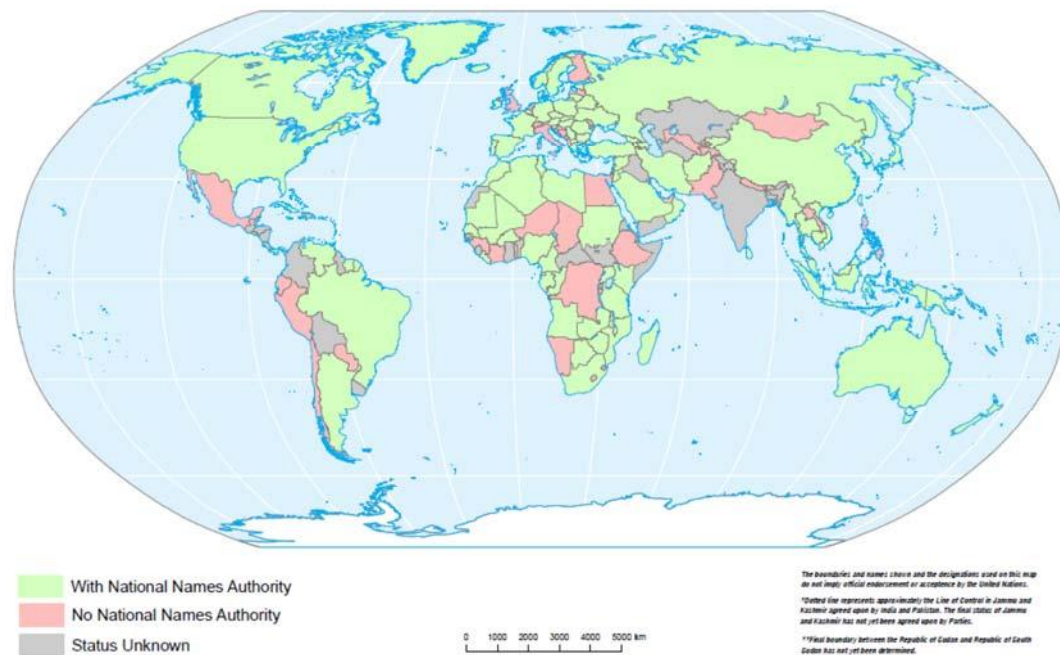
The UNCSGN elected as President Mr Ferjan Ormeling (Netherlands) who gave a welcoming address. Mr Stefan Schweinfest, Director of the United Nations Statistics Division delivered an opening speech in which he connected the work of the Conference and the outcomes of the seventh Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). He raised several general geospatial information issues that are familiar within the IHO (the best use of data, capacity building, crowd-sourcing, the technical nature of the work placed in a political context) and made favourable references to the IHO on several occasions.



At the UNCSGN, stimulating thematic 45-min special presentations were arranged as an introduction to each formal morning and afternoon session. Among others, the Director of Product Management for Google gave an interesting presentation entitled “*Building a Map for Everyone*”, going much beyond the simple horizon of geographical names. This gave rise to fruitful discussion among the Conference participants. At the invitation of the Conference, the IHO Secretariat gave a special presentation under the guiding theme for World Hydrography Day for 2017 - *Mapping our Seas, Oceans and Waterways - more important than ever*. This presentation provided the opportunity to raise the IHO profile, introduce the Organization and inform the Group of Experts on the development and maintenance of standards and publications, on the S-100 framework and on the IHO geospatial information registry. The IHO involvement in activities related to undersea feature naming were also highlighted together with the decision taken at the first Session of the IHO Assembly to progress consideration of the future of IHO Publication S-23 – *Limits of Oceans and Seas* through an informal consultation process led by the Secretary-General.

¹⁰ The new UN Advanced Toponymy Manual web training course will be made available mid-August 2017 at: <https://unstats.un.org/unsd/geoinfo/UNGEGN/>

Geographical Names Authorities (July 2016)



Several documents presented at UNCSCN-11 were related to maritime toponymic matters:

- *International Symposium on Application of Marine Geophysical Data and Undersea Feature Names, 2012~2016* (submitted by the Republic of Korea),
- *International Seminar on Sea Names, 2013~2016* (submitted by the Republic of Korea),
- *Guidelines for the Standardization of Marine Geographical Names (Second Edition, 2016)* (submitted by the Republic of Korea),
- *Report on New Zealand's implementation of UN Resolutions* (submitted by New Zealand),
- *Gazetteer of Sea Geographical Names of Cyprus* (submitted by Cyprus),
- *Geographical Names in German Coastal Waters* (submitted by Germany),
- *The UNGEGN Advanced Toponymy Manual* (submitted by the UNGEGN Working Group on Training Course in Toponymy),
- *Resolutions adopted in ten UNCSCN: 1967, 1972, 1977, 1982, 1987, 1992, 1998, 2002, 2007, 2012* (submitted by the UNGEGN Secretariat) in which many references are made to the IHO.

A submission paper entitled "*How UTF-8 revolutionized the Writing of Indigenous Languages*" (submitted by Canada) was well received in particular by the representative from Google. It may also have relevance for the IHO; for example, in the maintenance of the GEBCO Gazetteer of Undersea Feature Names database, for a future multilingual hydrographic dictionary database, and for encoding IHO S-100-based products in the future. The UNCSCN-11 questioned the effectiveness of the transliteration system (Beirut 1972) for Arabic languages on various occasions.

All documents supporting UNGEGN-30 and UNCSCN-11 are available on the UNGEGN webpage at <https://unstats.un.org/unsd/geoinfo/UNGEgn/> (see UNGEGN > Sessions or Conference > Conferences). As part of the restructuring of UNGEGN and UNCSCN, a cooperative mechanism with the UN-GGIM is now under development. The cycle of combined UNGEGN/UNCSCN events (for 5 days only) will become biennial in the future.

**7TH CONFERENCE OF THE ARCTIC
REGIONAL HYDROGRAPHIC COMMISSION (ARHC)
AND ILULISSAT MARITIME WORKSHOP
Ilulissat, Greenland, Denmark, 22 - 24 August**

The 7th Conference of the Arctic Regional Hydrographic Commission (ARHC) was held in Ilulissat, Greenland, Denmark, from 22 to 24 August, and included a maritime workshop that took place on 22 August.

Twenty participants representing four of the five ARHC Members (Canada, Denmark, Norway, and the USA), two Associate Members (Finland and Iceland) participated in the Conference. Fifteen stakeholders including the Association of Arctic Expedition Cruise Operators (AECO), Arctic shipping companies, and representatives from the government of Greenland and from local authorities participated in the workshop. The stakeholder representatives provided informative user perspectives on polar navigation, charting, and marine geospatial information in support of various applications including hunting management.

The Conference was chaired by Ms Pia Dahl Højgaard, Director-General of the Danish Geodata Agency. Assistant Director Yves Guillam represented the IHO Secretariat.



Participants in ARHC-7, Ilulissat, Greenland, Denmark

All participants reported on their activities in the Arctic region. As part of the reorganization of the Danish Geodata Agency, the delegation from Denmark reported on their good progress and efforts made in improving staffing levels and expertise since the last Conference, in order to meet their charting obligations in Greenlandic waters. Highlighting the fact that the Region N charting area is covered by only eight INT charts - all of which are produced by Norway, and that no ENC scheme exists, Norway reported on the role and membership of the Arctic International Charting Coordination Working Group (AICCWG). The members of the ARHC were invited to consider what should be the objectives and the programme of work to be assigned to the working group. The IHO Secretariat suggested that the AICCWG develops and maintains, in liaison with the Operational and Technical Working Group of the ARHC (OTWG), an up-to-date composite polar projection diagram of the existing charting coverage and traffic routes in the Arctic. This could then be used in various stakeholders' forums (Arctic Shipping Summit, PAME¹¹, etc.) to raise awareness as well as supplementing the cautionary notice regarding the status of charting in the region that was sent to various ARHC stakeholder organizations in June 2017 on behalf of the ARHC Members. It was also suggested that this coverage diagram should

¹¹ PAME: Arctic Council's working group on the Protection of the Arctic Marine Environment.

be included in the IHO annual report on ECDIS matters provided to the IMO NCSR¹². Several other tasks were assigned to the AICCWG and/or the OTWG including a re-run of the Chart Adequacy Assessment Analyzis, and the monitoring of the population of CATZOC values in ENCs.

The Arctic Regional Marine Spatial Data Infrastructure Working Group (ARMSDIWG) reported on its developing relationship with the Arctic Council's Spatial Data Infrastructure and presented a white paper that will be submitted to PAME, aiming to promote MSDI activities in the Arctic.

The IHO Secretariat reported on IHO Assembly decisions that may impact ARHC. The proposals being submitted to the 1st meeting of the IHO Council were reviewed for coordination purpose, noting that the Chair-elect of the IHO Council was present at the Conference and that all ARHC Members have a seat in the IHO Council. The ARHC Members considered the outcome of the 10th Ministerial Meeting of the Arctic Council in Fairbanks, Alaska, USA, on 11 May 2017 where the IHO application for Observer status was not considered. As a result, the ARHC members agreed to further engage with their national representatives at the Arctic Council in order to ensure that favourable consideration is given to the proposal in future.

Following on from discussions that occurred at ARHC-6 on the possible impact of marine noise management on hydrographic surveying operations, the IHO Secretariat informed the participants of informal discussion raised during the fortieth meeting of the Antarctic Treaty Consultative Meeting (ATCM XL) held in Beijing, China, in May, that identified several countries that have enforced restrictions on the use of certain acoustic devices, including MBES¹³ and other sonars. He also informed the participants that the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS) will focus its discussions at its nineteenth meeting, in 2018, on the theme "*Anthropogenic underwater noise*"¹⁴. As a result, the USA agreed to provide copies of relevant reports and studies in relation to acoustic noise and hydrographic surveying, for the information of the ARHC Members and for the use of the IHO Secretariat in appropriate international forums and organizations.

Fruitful discussions took place on crowd-sourced bathymetry, on surveying using autonomous vehicles, and on research projects occurring in the Arctic - some of them being funded by the European Commission Horizon 2020 programme such as the SEDNA¹⁵ project aiming to improve maritime safety in the Arctic. Canada and Denmark agreed to investigate the possibility of being involved in this project.

The *High North 17* Arctic geophysical research campaign carried out in the south of Svalbard, Norway in July 2017 by the Italian hydrographic service was also considered as part of an application from Italy to be accepted as an Associate Member of the ARHC. This application was approved by consensus.



Arctic navigation in practice...

¹² IMO NCSR : *International Maritime Organization Sub-Committee on Navigation Communication and Search and Rescue.*

¹³ MBES: *multibeam echo-sounders.*

¹⁴ UN Letter (*UN Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs*) dated 31 July 2017, *Ocean noise studies.*

¹⁵ SEDNA : *Safe maritime operations under extreme conditions: the Arctic case*

Norway was elevated from the position of Vice-Chair to take over the Chair at the end of the Conference. In the absence of the Russian Federation at the meeting, the Chair will invite the Russian Federation to consider occupying the Vice-Chair position as part of the established rotation.

The Conference noted Norway's offer to host the next Conference in Svalbard, Norway, from 11 to 13 September 2018.

13TH MEETING OF THE SOUTH-EAST PACIFIC REGIONAL HYDROGRAPHIC COMMISSION (SEPRHC)

Cartagena de Indias, Colombia, 21-25 August

The 13th meeting of the South-East Pacific Regional Hydrographic Commission (SEPRHC) was hosted and chaired by the Hydrographic Office of Colombia (*Dirección General Marítima - Centro de Investigaciones Oceanográficas e Hidrográficas del Caribe - DIMAR/CIOH*) from 21 to 25 August. The first two days were devoted to an “Update Workshop for Hydrographers and Cartographers”. Around forty delegates attended the meeting. The participants included sixteen representatives of the four IHO Member States of the Region (Chile, Colombia, Ecuador and Peru) and one observer from Panama. The United Kingdom and the United States (Naval Oceanographic Office) were also represented as observers. Eighteen representatives from industry contributed to the workshop and were invited to attend the meeting of the Commission as observers. In addition, some forty attendees from the Naval Academy and the Naval Non-Commissioned Officers’ School of Colombia and from local universities followed the workshop. Prof. Keith Miller (Trinidad and Tobago) represented the FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC). Dr Cesar Toro, Secretary of the Sub-Commission for the Caribbean and Adjacent Regions of the Intergovernmental Oceanographic Commission (IOCARIBE) contributed to the agenda item related to the IHO/IOC GEBCO Project. The IHO Secretariat was represented by Director Gilles Bessero.



The Participants to the SEPRHC13 Meeting

The workshop was conducted in English and Spanish with simultaneous translation between the two languages. The presentations at the workshop covered a wide scope of subjects, including the importance of hydrography, new technologies and developments related to hydrographic surveying, nautical charting and spatial data infrastructures, and capacity building aspects. Prof. Miller presented the new structure of the standards of competence and the course recognition process. Director Bessero provided an overview of the S-100 framework.

The meeting itself was conducted in Spanish. The opening ceremony was chaired by Rear Admiral Paulo Guevara Rodríguez, Director-General of DIMAR, and marked the transfer of chairmanship from Ecuador to Colombia. Following the report of the outgoing Chair, who acknowledged the support provided by the IHO Secretariat and the Capacity Building Sub-Committee (CBSC), Director Bessero presented the report of the IHO Secretariat, highlighting the activities and issues relevant to the Commission. The subsequent sessions were chaired by Captain Ricardo Torres Parra, the Director of the CIOH. The Members of the Commission and Panama presented reports on their national activities since the 12th Conference held in 2015. The representative of the Maritime Authority of Panama confirmed the intention of Panama to

join the IHO. The national reports were followed by an overview of the outcome of the last meetings of the two main IHO Committees (HSSC 8 and IRCC 9 respectively) and the consideration of the participation of the region in the relevant work programmes. Separate agenda items focused on capacity-building (CB), the status of the coverage of Electronic Navigational Charts (ENC), the provision of Maritime Safety Information (MSI), the implementation of Marine Spatial Data Infrastructures (MSDI) and the GEBCO Project.

The discussions were particularly open and well guided by the Chair. They led to a dozen actions and a further dozen decisions that focussed in particular on CB and MSDI issues. In response to an observation from the CBSC and the IRCC, the Commission agreed to disconnect the designation of its regional CB coordinator from the normal rotation of the Chair of the Commission. Chile agreed to take up the position of CB coordinator for an initial term of six years. The Commission agreed also to propose that the Capacity Building Sub-Committee consider including the development of an MSDI as a specific phase in the CB strategy.

The Commission decided to establish a working group tasked to develop a three-year action plan aiming at producing a regional tsunami response plan addressing the most urgent hydrographic needs.

The Commission agreed that all ENCs covering INT Region C2 should be made available through a Regional ENC Coordinating Centre and acknowledged the need to develop and maintain a regional ENC scheme. However it recognized that this task was not a priority in the context of limited resources and more pressing national requirements. With regard to the production of INT charts, Chile expressed the view that the efforts of the Members of the Commission should focus on the Antarctica Region.

The Members of the Commission were encouraged to submit their bathymetric data to the IHO Data Centre for Digital Bathymetry, including the data collected to update the existing sheets of the International Bathymetric Chart of the South East Pacific (IBCSEP). Colombia suggested that the Region should seek to benefit from the Seabed 2030 Project.

The Members of the Commission were encouraged to identify members of staff familiar with MSI issues that could be trained as trainers for future MSI courses. The Members of the Commission confirmed their commitment to progress the revision of the Spanish version of the IHO Manual on Hydrography.

The Members of the Commission were invited to inform Panama, through the Chair, of all hydrographic training opportunities that become available, including on-the-job training.

The Statutes of the Commission were amended to align the term of office of the Chair with the three-year cycle of the IHO Council, the seat allocated to the Commission being assigned to the Chair. The Spanish name of the Commission was amended to conform to the usual form "Comisión Hidrográfica Regional" instead of "Comisión Regional Hidrográfica". At the suggestion of the IHO Secretariat the Commission decided to terminate the Commission website which had not been updated since 2015 and to simply maintain the Commission section on the IHO website, in liaison with the IHO Secretariat.

At the suggestion of the IHO Secretariat, Chile was invited to consider representing the IHO at the next session of the Asia-Pacific Heads of Maritime Safety Agencies forum, to be held in Chile in April 2018.

It is expected that the next meeting of the Commission will be hosted by Chile in 2020.

SEPTEMBER

9TH MEETING OF THE IHO WORLD-WIDE NAVIGATIONAL WARNING SERVICE SUB-COMMITTEE Cape Town, South Africa, 28 August-1 September

The 9th meeting of the World-Wide Navigational Warning Service (WWNWS) Sub-Committee (WWNWS9) was hosted by the South African Navy Hydrographic Office and held at the Park Inn, Newlands, Cape Town, South Africa, from 28 August to 1 September under the chairmanship of Mr Peter Doherty of the United States of America. Commander Christoff Theunissen, acting Hydrographer of South Africa, welcomed the meeting which was attended by 51 delegates from 24 IHO Member States, the Secretariat of the World Meteorological Organization (WMO), the Secretariat of the International Mobile Satellite Organization (IMSO), the Chairs of IMO NAVTEX and International SafetyNET Coordinating Panels, Inmarsat, Iridium, South African Maritime Safety Agency (Maritime Rescue Coordination Centre) (SAMSA (MRSCC)), Security of Navigation, Stabilisation, Advice and Training (inc AWNIS) (SONSAT), Telkom Maritime Radio and the IHO Secretariat. The delegates included representatives of 19 NAVAREA Coordinators, one Sub-Area Coordinator and five National Coordinators. The IHO Secretariat was represented by Assistant Director David Wyatt.



*Participants at the 9th meeting
of the IHO World-Wide Navigational Warning Service Sub-Committee in Newlands,
Cape Town, South Africa*

The Sub-Committee received Maritime Safety Information (MSI) self-assessment reports from all 21 NAVAREAs, the Baltic Sea Sub-Area and a national report from China, as well as reports from the Secretariats of the WMO and IMSO. The outcomes from the 15th meeting of the Document Review Working Group (14-16 March 2017) were discussed; in particular the proposed editorial amendments to the IMO resolutions A.705(17) – *Promulgation of Maritime Safety Information*, A.706(17) – *World-Wide Navigational Warning Service*.

The delegates received briefings on the outcomes of recent International Maritime Organization (IMO) meetings, including the 97th and 98th sessions of the Maritime Safety Committee, the 4th session of the Sub-Committee on Navigation, Communications and Search and Rescue and the 13th session of the IMO-International Telecommunication Union (ITU) Expert Group. Up-dates on the activities of the IMO NAVTEX Coordinating and the International SafetyNET panels were provided by their respective chairs as well as developments in the provision of mobile satellite

Global Maritime Distress and Safety System (GMDSS) services from Inmarsat and Iridium. The meeting also received a progress report on the development of the S-124 Product Specification on Navigational Warnings from the Chair of the S-124 Correspondence Group.

The sessions considered progress reports on the delivery of MSI training courses, and discussed the processes for reporting the status of MSI provision at Regional Hydrographic Commission meetings and methods for identifying to the Capacity Building Sub-Committee the regions and coastal States most in need of training and assistance.



WWNWS9 in plenary session

The next meeting of WWNWS-SC will be held in Monaco, 27 to 31 August 2018; details will be published on the WWNWS-SC page of the IHO website when available. It is planned that the meeting will include joint sessions with the METAREA Coordinators of the World-Wide Metocean Information Warning System (WWMIWS).

Mr Peter Doherty, USA, was re-elected as Chair for the period 2017 to 2020 and Mr Trond Ski, Norway, was elected as vice-Chair. Two long serving members, Mr Alain Rouault (France), 7 years, and Mr Svante Håkansson (Sweden), 20 years, informed the meeting that they would be standing down from their positions as NAVAREA II and Sub-area Ib respectively and retiring at the end of the year.

When finalized the report of WWNWS9 will be posted in the IHO website, where all the meeting documents are already available (www.iho.int > Committees & WG > WWNWS-SC > WWNWS9)

14TH CONFERENCE OF THE SOUTHERN AFRICA AND ISLANDS HYDROGRAPHIC COMMISSION (SAIHC)

Saint-Gilles-les-Bains, French Department of la Réunion, France, 6 to 8 September

The 14th Southern Africa and Islands Hydrographic Commission (SAIHC) Conference was hosted by Shom and held in Saint-Gilles les bains, French Department of la Réunion, France from 6 to 8 September under the chairmanship of RAdm Tim Lowe from the United Kingdom. The Conference was attended by delegates from France, Mozambique, Norway, United Kingdom, Namibia, Portugal and Seychelles. Delegates from the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the two Regional Electronic Nautical Chart (RENC) organizations: IC-ENC and PRIMAR also participated in the meeting. Industry participants from Fugro Survey, Kongsberg Maritime and Chartwise and a delegate from the United States of America attended as observers. The application by India to join SAIHC as an Associate Member State was approved. Director Abri Kampfer and Assistant Director Anthony Pharaoh represented the IHO Secretariat.

The 14th Conference included a meeting of the regional International Charting Coordination Working Group (ICCWG) during which the status of INT chart production in the region was discussed. There was agreement that an ENC Scheme for SAIHC should be progressed as a matter of priority. INT Chart production in the region shows good progress and several new charts are in final stages of production.



Participants of the 14th SAIHC Conference

Each of the participating Member and Associate Member States represented at the Conference provided a briefing on the status of hydrography and charting priorities in their areas of responsibility.

There were reports, presentations and discussions on Marine Spatial Data initiatives, GEBCO activities, and the IHO capacity building programme for the region. Other topics discussed during the meeting included; the status of IHO publications, the accuracy of C-55 information and the need to provide regular updates, procedures for marine disasters that should include an updated list of emergency contacts with alternate contacts where applicable and maritime safety information for NAVAREA VII. The lack of NAVTEX stations in the region and poor or no communication with the NAVAREA VII co-ordinator were raised as major concerns. Discussions on marine Spatial Data initiatives included a presentation by Norway on the Marine AREA database for Norwegian waters (Mareano) project that has been run since 2005, initially a modest starter programme, it has subsequently evolved into an extremely large national programme. The oil and gas industry shares a lot of data for use in the database and various

outputs can be generated, for example bathy data, backscatter data and water column data. This project shows how hydrographic work can be extremely valuable to other organisations.

The two RENC organizations provided an update on their individual programmes and the status of ENC distribution in the region. Presentations were also provided by each of the industry participants.

Comprehensive national reports were provided by France, Mozambique, Norway, South Africa, United Kingdom, Portugal, Namibia and Malawi.

The Statutes of the Commission were amended with some editorial changes resulting from the entry into force of the Amendments to the IHO Convention and a new paragraph governing the joining of IHO Member States as Associate Members of the Commission.

A very frank discussion was held on strategies to improve attendance of SAIHC Conferences and difficulties that may exist as several Member and Associate Members cancelled attendance at short notice. The importance of the submission of National reports will be communicated, especially in cases where attendance is not possible. The importance of IHO membership was highlighted and Associate Members were encouraged to report at the next conference on their progress with regards to in-country processes and to indicate the impediments that may be addressed by IHO Secretariat intervention.

Rear Admiral Tim Lowe, United Kingdom was elected as Chair and Captain Theo Stokes, Republic of South Africa, was elected as Vice Chair, subject to his confirmation. The next conference is proposed to take place during the last week in August 2018 in Seychelles.

All papers and presentation for the Working Group meeting and the Conference are available on the SAIHC14 document page on the IHO website (<http://www.iho.int>).

22ND CONFERENCE OF THE BALTIC SEA HYDROGRAPHIC COMMISSION

Rostock, Germany, 19-21 September

The 22nd Conference of the Baltic Sea Hydrographic Commission (BSHC22) was held in Rostock, Germany, from 19 to 21 September, under the Chairmanship of Mr Mindaugas Cesnauskis (Lithuania). Seven out of eight full members of the Commission (Denmark, Estonia, Finland, Germany, Latvia, Poland, Sweden) and associate member Lithuania were represented at the Conference. The Lithuanian delegation was composed of two representatives from the national Ministry of Transportation aiming to familiarize themselves with the work of the Commission. The delegation of the Russian Federation did not participate. The United Kingdom and the United States of America were also represented at the Conference as Observers. The IHO Secretariat was represented by Secretary- General, Dr Mathias Jonas.



The Participants of the 22nd Conference of the Baltic Sea Hydrographic Commission

The Russian Federation, as Chair of the previous Conference (BSHC21) in Klaipeda, Lithuania in 2016, provided the final minutes prior to the beginning of BSHC22. The Conference endorsed the minutes overall but decided to compile their remarks and comments into an addendum to be drafted and circulated by the Chair after the conference.

BSHC22 covered a wide range of regional topics including developments in each of the Member States, the latest status of hydrographic surveying and nautical charting including INT Charts, ENC production and BSHC cooperative projects. The members of the BSHC reported on their national hydrographic, cartographic and Maritime Safety Information activities since the 21st meeting. They also presented new developments with regard to surveying, chart production and maritime traffic management. Secretary-General Dr Mathias Jonas reported on the IHO Work Programme and the Organization's activities during the previous year. He also provided the Commission with general information on the effects of the decisions of the 1st IHO Assembly and the revised convention of the IHO pertaining to the work of the Commission. He placed special emphasis on the program of the upcoming 1st IHO Council (C-1), highlighting the fact that five (Denmark, Finland, Germany, Sweden and the Russian Federation) of the eight BSHC members will be represented at the Council. He encouraged the remaining other members to forward their views on the Council topics to the Council Member States of the region.

The Vice-Chair identified necessary amendments of the Statutes of the BSHC in order to reflect changes of the IHO Convention. He accepted to prepare such draft amendments prior to BSHC23 (2018). It is planned to conduct a formal signing ceremony of the amended BSHC Statutes at this event.

The Commission reviewed on-going regional initiatives in particular the activities of the Monitoring Re-survey Working Group (MWG), Baltic Sea Bathymetric Database Working Group (BSBDWG), Baltic Sea Marine Spatial Data Infrastructure Working Group (BSNSMSDIWG), Baltic Sea International Charting Coordination Working Group (BSICCWG) and the Chart Datum Working Group (CDWG). The Commission considered the outcome of the 9th meeting of the Inter-Regional Coordination Committee (IRCC) and the 7th meeting of World Wide ENC Database Working Group (WEND-WG).

The Conference put special emphasis on regional engagement within the framework of the IHO-European Union Networking Working Group (IENWG). Multilateral projects such as Coastal mapping and Emodnet phase III which enjoy active participation of BSHC members, were presented in further detail. The Conference took note of national activities in European projects with relation to maritime themes and links to hydrography.

The Commission renewed its commitment to the continued maintenance of the BSHC internet portal hosted by Sweden including the provision of a gridded bathymetry model for the whole of the Baltic. The current model still faces good public perception by a significant number of visitors and downloads. Numerous members confirmed their plans to supply up to date data in higher resolution to improve the usability of the model. The Member States reaffirmed these activities as their regional contribution to the joint IHO / IOC initiative "Seabed 2030".

At the end of the meeting, Mr Thomas Dehling, (Germany) was elected as the new Chair of the BSHC. It was agreed that the next meeting of the BSHC will be hosted in Aalborg, Denmark from 28 to 30 August 2018. All available documents of the meeting are posted on the BSHC page of the IHO website as well as under www.bshc.pro.

PROFESSIONAL YACHTING ASSOCIATION SEA CHANGES SEMINAR

IHO Secretariat, Monaco, 28 September

The Professional Yachting Association (PYA) was founded in 1991 in response to the creation of the Large Commercial Yacht and Passenger Yacht Codes. The PYA is the professional body for yacht crews and the luxury yacht industry. It has 15 regional offices worldwide and its headquarters in Antibes, France.

The PYA enjoys observer status with the International Hydrographic Organization (IHO). As part of IHO outreach activities, the Secretariat of the International Hydrographic Organization (IHO) provided the venue for the annual PYA Sea Changes Seminar on 28 September, on the occasion of the annual Monaco Yacht Show. The Seminar was attended by a total of 100 delegates representing yacht crews, shore-based support companies, training organizations and administrative authorities.



UK MCA addressing the PYA Seminar

The Seminar was divided into two sessions. The first session covered United Kingdom (UK) Maritime Coastguard Agency (MCA), PYA and UK Royal Yachting Association (RYA) issues and updates. The second session covered general social security and cyber security on yachts.

The participants were welcomed by the IHO Secretary-General, Dr Mathias Jonas, after whomssistant Director David Wyatt provided an up-date on the IHO Crowd-sourced Bathymetry (CSB) initiative, encouraging those crews who are not participating yet to consider joining the CSB community through active data contribution. He highlighted the draft guidance document, which has been created by the IHO CSB Working Group and for which comments and feedback are sought prior to preparing the final version of Edition 1.0.0, which it is anticipated will be formally submitted for the approval of IHO Member States in the latter part of 2018.

The evening concluded with a reception on the roof terrace of the IHO Secretariat organised and hosted by the PYA.

6TH MEETING OF THE IHO-EU NETWORK WORKING GROUP Saint-Mandé, France, 27-28 September

The IHO-EU Network Working Group (IENWG), established by the Inter-Regional Coordination Committee (IRCC) to monitor and deal with the activities and processes developed under the aegis of the European Union (EU), held its sixth meeting in Saint-Mandé, France, on 27 and 28 September, at the invitation of the French Hydrographic Office (SHOM).

The meeting was chaired by Laurent Kerléguer (France) and attended by representatives from the following Regional Hydrographic Commissions:

- Baltic Sea Hydrographic Commission (Sweden),
- Eastern Atlantic Hydrographic Commission (France),
- Meso American - Caribbean Sea Hydrographic Commission (France),
- Arctic Regional Hydrographic Commission (Denmark),
- Nordic Hydrographic Commission (Norway),
- Southern African and Islands Hydrographic Commission (France),
- South West Pacific Hydrographic Commission (France).

Apologies were received from Germany, representing the North Sea Hydrographic Commission and Greece representing the Mediterranean and Black Seas Hydrographic Commission. Representatives from the Italian Hydrographic Office participated by video conference and a representative from Ireland participated in the meeting, both as Associate Members. Director Abri Kampfner represented the IHO.

Feedback was provided by France on the participation in the Expert Group of States on the progress on the European Maritime Spatial Planning directive. The deadline for the establishment of Maritime Spatial Plans (MSP) is 2021. Member States are in different stages in their MSP processes, using different methodologies and tools. There is a requirement to note the trans-boundary issues and to increase cross-border cooperation. Updates on transnational projects were provided. Although HOs are potentially key players for MSP due to their background in management of many reference data, some of them are not involved in their national organisation for MSP. IENWG took an action for promoting the role of HOs for MSP; a DG-mare testimony will be sought to build the argument.

The Task Groups on Data of SIMNORAT, SIMWESTMED and SEANSE are open to Hydrographic Offices to contribute or be informed on the activity related to data and MSP. A SIMCelt data workshop will be held on 28 November 2017 at the SIMCelt Conference, Liverpool, United Kingdom.



France, as the Project Coordinator, reported on the progress of the Coastal Mapping Project funded by the European Commission in support of the development of the European Marine Observation and Data Network (EMODnet) and in particular on phase III of the component of EMODnet. A consortium of 41 collaborating organisations held a meeting at the end of March 2017. A new modern EMODnet Bathymetry web portal with responsive design has been implemented and there is ongoing discussion on how to collaborate with the IHO-IOC GEBCO Project (Seabed 2030).



Discussion on the European strategy for high resolution coastal data was considered and in particular the relevance of the work of the IHO Crowd-Sourced Bathymetry Working Group and the revision of S-44 by the Project Team on Standards for Hydrographic Surveys (HSPT).

The meeting shared the concern of irregular attendance by members that has as a consequence poor feedback to RHCs on the work of the IENWG. Consideration may have to be given to broaden the membership to include all European HOs.

It is planned to hold the 7th meeting of the IENWG from 6 to 7 February 2018, venue to be confirmed, and an IENWG Plenary session from 27 to 28 February 2018 in Brussels, Belgium.

4TH SESSION OF THE IMO SUB-COMMITTEE ON IMPLEMENTATION OF IMO INSTRUMENTS (III)

London, United Kingdom, 25 – 29 September

The Sub-Committee on Implementation of IMO Instruments (III) is a subordinate body of the Maritime Safety Committee (MSC) of the International Maritime Organization (IMO). The Sub-Committee brings together flag, port and coastal States to consider implementation issues, including the analysis of consolidated audit summary reports from the mandatory IMO Member state Audit Scheme. The Sub-Committee has a key role in casualty analysis and issuing lessons learned from marine incidents. The Sub-Committee receives and analyses port State control data and keeps under review the procedures for port State control (PSC). Guidelines for survey and certification including the survey guidelines under the Harmonized System of Survey and Certification (HSSC) also come under the remit of this Sub-Committee.



IMO III 4 Plenary in session

The 4th session of the Sub-Committee (III4) was held at the IMO Headquarters in London, United Kingdom from 25 to 29 September. The IHO was represented by Assistant Director David Wyatt. The meeting addressed issues related to the Model Agreement for the authorization of recognized organizations acting on behalf of the Administration, updated Survey Guidelines under the Harmonization System of Survey and Certification, unified interpretation of provisions of the IMO, safety, security and environment-related Conventions, lessons learned and safety issues identified from the analysis of marine safety investigation reports, identified issues relating to the implementation of IMO instruments from the analysis of PSC data and the consideration and analysis of report on alleged inadequacy of port reception facilities.



*IMO dressed overall for World Maritime Day
29 September*

Of relevance to IHO Member States were the discussions on measures to harmonize PSC activities and procedures worldwide, in particular a submission by INTERTANKO on the outcomes of the 4th session of the Sub-Committee for Navigation, Communications, and Search and Rescue (NCSR4) on monitoring ECDIS issues, which raised concerns that some manufacturers had not been able to upgrade their systems to incorporate ECDIS Presentation Library Edition 4.0 prior to 1 September 2017. The IHO made an intervention, which provided information on the relevant IHO standards and their relationship to IEC Test Standards for Type Approval of ECDIS. The IHO highlighted that the ECDIS Chart 1 was only meant to provide a mechanism for the mariner to confirm that his ECDIS portrayal is correct and in no way should be used as a full compliance

approval test. The IHO commented that the proposals submitted by INTERTANKO, on how vessels, which had not been able to update their ECDIS systems by the target date, could be inspected by PSC officers, were a pragmatic interim solution to allow the shipping industry and the equipment manufacturers some additional time to achieve full compliance with current IMO/IHO regulations/standards, whilst not disadvantaging those manufacturers who have made the changes within the pre-agreed timescale. There was support from IMO member states for the INTERTANKO proposals, which were used as a basis to develop wider IMO guidance to maritime administrations and PSC to cover the interim period until the shipping industry and equipment manufacturers have completed the upgrade process.

The meeting report and associated documents will be available in the III section of the IMODOCS website in due course.

Rear Admiral (Maritime Affairs) Jean-Luc Le Liboux, France, and Ms Claudia Grant, Jamaica, were elected as Chair and Vice-Chair, respectively, of the Sub-Committee for its fifth session scheduled to be held at the IMO Headquarters from 24 to 28 September 2018.

**LIAISON VISIT TO THE 9TH COURSE
OF THE IHO-NIPPON FOUNDATION CHART PROJECT
United Kingdom Hydrographic Office, Taunton, UK, 28 September**

Director Mustafa Iptes and Mr Kentaro Kaneda (Project Officer seconded to the IHO Secretariat from Japan) visited the United Kingdom Hydrographic Office (UKHO) on 28 September to meet and brief the trainees attending the 9th course of the IHO - Nippon Foundation CHART (Cartography, Hydrography and Related Training) Project. The project, funded by the Nippon Foundation of Japan, provides training in marine cartography and data assessment, which is recognized at the Category B level by the FIG-IHO-ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers. The course is hosted by the UKHO and composed of five modules, each module varying from two to five weeks in length. The 9th course started on 4 September 2017 and will end on 15 December. It is attended by students from Algeria, Ecuador, Fiji, Malaysia, Thailand, Ukraine and Venezuela.

Director Iptes discussed various topics with the students. In response, the students described their experiences and thanked the Nippon Foundation, UKHO and IHO for the opportunity to develop their knowledge and expertise in the field of nautical cartography. Director Iptes delivered a presentation highlighting the areas of influence and the value of hydrography and the responsibilities of Governments in relation to the provision of hydrographic data, information, products and services. The important coordination and standardization role of the IHO and its Capacity Building programme were also described. The students were encouraged to keep in touch with each other and to maintain an alumni relationship after they return to their home countries.



The trainers and trainees of the 9th CHART Course with Director Iptes.

OCTOBER

30TH MEETING OF THE IHO-IOC GEBCO SUB-COMMITTEE ON UNDERSEA FEATURE NAMES Genoa, Italy, 2 - 6 October

The 30th meeting of the IHO-IOC GEBCO Sub-Committee on Undersea Feature Names (SCUFN) was hosted by the Istituto Idrografico della Marina (IIM), in Genoa, Italy, from 2 to 6 October.

SCUFN is tasked with the determination of the names of undersea features to appear in the products of the IHO-IOC General Bathymetric Chart of the Oceans (GEBCO) project and on international nautical charts. These names, also widely used in scientific publications, are made available in the GEBCO Gazetteer of Undersea Features Names (www.gebco.net → Data and products → Undersea feature names → view and download). The meeting, chaired by Dr Hans Werner Schenke (IOC representative) from the Alfred Wegener Institute for Polar and Marine Research (AWI – Germany), was attended by 26 participants, which consisted of nine of the 12 SCUFN members (four IOC and five IHO representatives), four members of the SCUFN Project Team on Undersea Feature Names (UFN PT) and 11 observers, including Mr Shin Tani (Chair of the GEBCO Guiding Committee) and Mr Tetsushi Komatsu (IOC Secretariat). Assistant Director Yves Guillam (SCUFN Secretary) and Project Officer Atilio Aste (Seconded Officer from Peru) represented the IHO Secretariat.

The meeting was opened by Captain Luigi Sinapi, Director of the IIM, who welcomed all the participants and stressed that SCUFN work is very important and strategic in order to support not only the GEBCO maps and other GIS products, but also the GEBCO Seabed 2030 project, aiming to develop a new global high resolution map of the oceans. The Chair of SCUFN introduced a new SCUFN Member: Mr Felix Frias Ibarra (Mexico, IOC representative). In accordance with the SCUFN Terms of Reference, the Secretary informed the meeting of eight anticipated changes to the membership due to occur after the meeting and mainly in 2018. He presented the timeline for the IHO and IOC Secretariats to prepare calls for nominations to fill vacancies, drawing the attention on the need to balance continuity and renewal in the selection process.



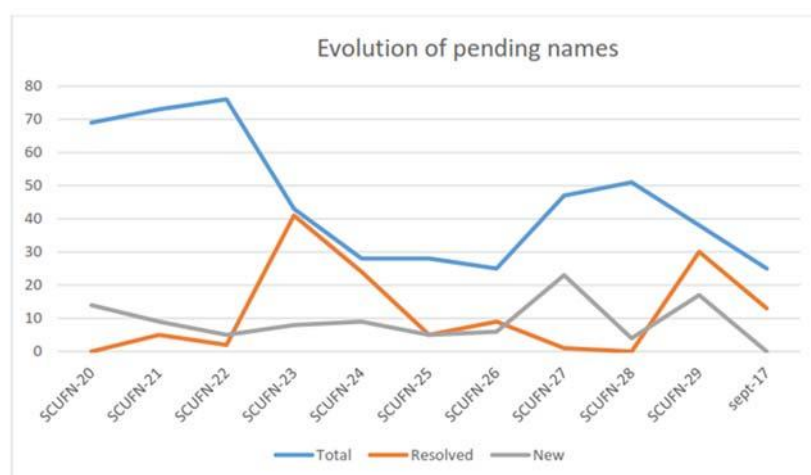
The Sub Committee considered new proposals for 113 undersea feature names, submitted by various bodies and supporting organizations from Brazil (9), China (41), Japan (36), Republic of Korea (4), Republic of Palau (17), New Zealand (2) and USA (4). The Sub Committee pursued the fast-track procedure in its review for the new proposals made by New Zealand (7) related to names that already appear on nautical charts. Finally, the Sub Committee considered the report from the New Zealand Geographic Board on the outcome of previous fast-track proposals, evaluated (10) or submitted (23) in 2016 at SCUFN29.

While a large number of the names proposed to the Sub Committee were accepted, decisions on some were postponed (38 from Japan) for further consideration for various reasons, including the increasing number of submissions now being received and the lack of time available during the meeting.

In addition to consideration of the naming proposals, the Sub Committee considered several “corporate” issues, including:

- The endorsement of an amendment to the SCUFN Rules of Procedure that will be submitted for approval by the GEBCO Guiding Committee at its 34th meeting,
- Benefits of participating on a more regular basis in the Sessions of the United Nations Group of Experts on Geographical Names (UNGEGN),
- Cooperation between Marine Regions, SCUFN and UFN PT to de-conflict naming and positions between different sources and contribute to the UFN data modelling,
- Development of a preliminary test case of the current IHO Geospatial Information Registry using the UFN Data Motel (S-57) taking into account the current concept definitions in force in Ed. 4.1.0 of Publication B-6 - *Standardization of Undersea Feature Names (Guidelines, Proposal Form, Terminology)*,
- Preparation of Ed. 4.2.0 of Publication B-6, which will include the integration of the fast-track procedure for existing names which are already charted and improvements of the proposals submission in digital format (geometry, additional maps, etc.),
- The current and future status of the maintenance and improvement of the GEBCO Gazetteer interface by the National Oceanic and Atmospheric Administration (NOAA) of the United States,
- The development of a prototype on integrated SCUFN web services and database by the Republic of Korea,
- The increasing resources needed to incorporate SCUFN naming decisions into the GEBCO Gazetteer and the fact that this can only be achieved by contracting out some work during the inter-sessional period.

As a consequence of a contract awarded in 2016, the SCUFN Members were pleased to note a decrease in the total number of *pending* names (proposals and related actions) between 2015 and 2017.



Finally, the SCUFN Generic Term Group was also invited to prepare for the next meeting, a “straw man” paper proposing a general strategy and possible guidelines defining the optimal horizontal resolution between undersea features that are eligible for naming. The aim is to rationalize the naming process in some areas, to better manage the number of internationally-recognized features named while new technologies offer more possibilities, limit the clutter in mapping, and improve consistency with associated existing features.



Participants of the SCUFN-30 meeting

OUR OCEAN CONFERENCE 2017

St. Julian's, Malta, 5-6 October

Since 2014, high-level participants from many countries have attended Our Ocean Conferences (hosted by the Governments of the United States of America (2014 and 2016) and Chile (2015), including Heads of State, Government ministers, companies from global industry, non-governmental organizations (NGOs) and philanthropic organisations. Our Ocean Conferences focus on all maritime aspects and regularly invites world leaders to look into the future and respond, delivering high-level commitments and transforming the challenges ahead into an opportunity for cooperation, innovation and entrepreneurship.

The 2017 edition of the Our Ocean Conference, “An ocean for life”, was hosted by the European Union (EU) and took place in St. Julian's, Malta on 5 and 6 October. The Conference was combined with an exhibition illustrating contributions to ocean related activities from coastal States, International Organizations, non-governmental organizations and industry. High level representatives including Presidents, Prime Ministers and Ministers from more than 100 states attended the Conference. His Serene Highness Prince Albert II of Monaco, His Royal Highness Prince Charles, Prince of Wales, and Her Majesty Queen Noor of Jordan delivered key note speeches at the Conference. Director Mustafa Iptes represented the IHO.



High-level participants of the Our Ocean Conference-2017

Our Ocean Conference-2017 covered numerous ocean related topics which were considered at different panel sessions during the two day event:

- Marine pollution
- Marine protection
- Maritime security
- Sustainable blue economy
- Sustainable fisheries
- Climate related impacts on the ocean
- Our Ocean Leadership

Each panel session was followed by the announcement of commitments from different sectors. Our Ocean Conference-2017 generated an unprecedented level of ambition:

- 437 tangible and measurable commitments,
- EUR 7.2 billion in financial pledges,

- 2.5 million Square kilometres of additional Marine Protected Areas committed by Chile, the Cook Islands, Indonesia, Niue and Palau in the Pacific Ocean.

With 100 commitments from the corporate sector, the 2017 Conference for the first time mobilized at scale, the business community in ocean conservation. The EU's 36 commitments alone amounted to over EUR 550 million, and together with its Member States and the European Investment Bank, the total EU pledge exceeded EUR 2.8 billion. Other countries, NGOs, foundations, research institutes and international organisations tabled nearly 300 commitments in a truly global show of determination to act. Altogether, almost doubling the amount pledged since 2014, substantially increasing the world's marine protected areas and launching impactful action in all corners of our oceans.

In addition to the panel discussions in the Conference, a very extensive programme of side meetings and briefings took place under the Exhibition Stage Programme, covering the full range of interests in protection of the world's seas and oceans and moving towards new projects for healthy oceans.

The 2018 edition of the Our Ocean conference will be hosted by Indonesia, in Bali on 29 and 30 October 2018. Additional information with regards to Our Ocean Conference-2017 is available at the conference web site:

<https://ourocean2017.org/>

**9TH CONFERENCE AND 24TH BUSINESS MEETING OF
THE ADVISORY BOARD ON
THE TECHNICAL ASPECTS OF THE LAW OF THE SEA
Monaco, 9-12 October**



ABLOS Members gathered for ABLOS BM24 in Monaco

The Advisory Board on the Technical Aspects of the Law of the Sea (ABLOS) is a joint board of the International Hydrographic Organization (IHO) and the International Association of Geodesy (IAG). The ABLOS comprises four representatives from IHO Member States and four representatives from the IAG. The United Nations Division for Ocean Affairs and Law of the Sea (UNDOALOS) and the Secretariat of the IHO provide one ex-officio member each. ABLOS is charged with providing advice, guidance and, where

applicable, offering expert interpretation of the hydrographic, geodetic and marine geo-scientific aspects of the Law of the Sea to the parent Organizations, their Member States or to other organizations on request. It also reviews State practice and jurisprudence on Law of the Sea matters which are relevant to the work of the Board to enable it to provide expert advice when needed. ABLOS also studies, promotes and encourages the development of appropriate techniques in the application of the technical provisions contained within the UN Convention on the Law of the Sea (UNCLOS). IHO publication C-51-*Manual on the Technical Aspects of the United Nations Convention on the Law of the Sea* is maintained by the ABLOS.

The 24th Business Meeting of ABLOS was held at the IHO Secretariat in Monaco on 9 and 12 October. The 9th ABLOS Conference, titled 'UNCLOS: Pushing the Limits of UNCLOS' took place 10-11 October and also was held at the IHO Secretariat.

24th Business Meeting of ABLOS

All ABLOS members and observers from Australia, Brazil, Canada, Chile, Denmark, France, India, Japan, Republic of Korea and the United Kingdom (UK) were present; representatives from Qatar and the UK Hydrographic Office also attended both events. The Chair, Mr John Brown (IHO – UK), welcomed all Board members and observers to the business meeting.

The first session of the business meeting completed final preparations for the 9th ABLOS Conference.

ABLOS members and observers discussed notable topics from the various conferences, seminars and workshops that they had attended and undertaken since the previous business meeting. The meeting also discussed the material for the ABLOS capacity building training course and reviewed ways to develop it further.

During the second session of the business meeting the Terms of Reference and Rules of Procedure for ABLOS were reviewed, a number of amendments were proposed, which once finalised, will be presented to the 10th session of the HSSC and the IAG Executive Council for consideration. ABLOS noted that two IHO appointed members were due to end their terms in October 2018 and three IAG appointed members in July 2019. All were requested to advise whether they would be available for re-nomination by their respective host organizations or whether they were aware of suitable candidates to fill the forthcoming vacancies.

The revisions identified for chapter 3 of Edition 5.0.0 of the Manual on Technical Aspects of the United Nations Convention on the Law of the Sea - 1982 (TALOS Manual - C-51) were discussed. The revision time frame and process were decided with a target completion in 2018 for consideration by the 10th meeting of the Hydrographic Standards and Services Committee. Japan agreed to provide the revised chapter 3 text for review by the Editorial Board. In addition the French and Chilean members of ABLOS agreed to progress the completion of the French and Spanish translations of Edition 6.0.0, so that all three language versions would be in the same Edition state.

The focus of the regional seminar in Qatar, which will be held immediately following the next Business Meeting, was discussed and agreed with the host organization. The meeting then considered the theme, title and keynote speaker for the next Conference, the 10th ABLOS Conference, which will be held in Monaco in 2019. It was agreed that there was a need to maintain the momentum generated at the 9th Conference and therefore the dates, title, keynote speaker and advertising needed to start at least 18 months ahead of the proposed dates. A Conference organizing committee was formed to undertake these tasks.

On completion of the ABLOS Conference, Dr Niels Andersen (Denmark) assumed the role of Chair and Ms Izabel King-Jeck (Brazil) was elected as Vice-Chair. It was agreed that the next Business Meeting would take place in Doha, Qatar, 22-25 October 2018 and the next ABLOS Conference would take place in Monaco on 8 - 9 October 2019.

9th ABLOS Conference

The 9th ABLOS Conference was attended by approximately 68 delegates from 24 different States, (Algeria, Argentina, Australia, Brazil, Canada, Chile, China, Denmark, France, Germany, India, Japan, Malaysia, Monaco, Netherlands, New Zealand, Norway, Oman, Qatar, Republic of Korea, Saudi Arabia, , Switzerland, United Kingdom and USA). The Conference included 20 presentations covering a wide variety of topics and issues in relation with the theme “*UNCLOS: Pushing the Limits of UNCLOS*”. IHO Secretary-General, Dr Mathias Jonas, welcomed the delegates on behalf of the IHO. The opening key note address was given by Ms Kristina Maria Gjerde, Senior High Seas Policy Advisor to the International Union for the Conservation of Nature’s Global Marine and Polar Programme. The general theme of the conference was the impact of new technologies and techniques, and the implementation of UNCLOS into the Area Beyond National Jurisdiction (ABNJ). The presentations on various aspects of the Law of the Sea generated numerous questions and comments in plenary and much discussion in the margins during the breaks.



Participants at the 9th ABLOS Conference

Date of Next Meetings

The next Business Meeting and Seminar will be held in Doha, Qatar, 22-25 October 2018; the 26th Business Meeting and the 10th ABLOS Conference will be held in Monaco and is planned for the period 7-10 October 2019; details will be available from the IHO website as the planning progresses.

Availability of Documents

The documents considered by the business meeting and the presentations given at the Conference will be available from the ABLOS section of the IHO website (IHO → Committees and Working Groups → HSSC → ABLOS).

1ST IMO/IHO HARMONIZATION GROUP ON DATA MODELLING

IMO, London, UK, 16-20 October

The first joint IMO/IHO Harmonization Group on Data Modelling (HGDM) meeting took place from 16 to 20 October 2017 under the chairmanship of Mr Sunbae Hong (Republic of Korea).

The group was attended by representatives from the following Member States: Australia, Brazil, Canada, Denmark, France, Germany, Japan, Norway, Peru, Philippines, Poland, Republic of Korea, Sweden, United Arab Emirates, United Kingdom and the United States. The group was also attended by members from the European Commission (EC), International Chamber Of Shipping (ICS), International Electrotechnical Commission (IEC), International Association of Marine Aids to Navigation And, Lighthouse Authorities (IALA) and Comité International Radio-Maritime (CIRM). Assistant Director Anthony Pharaoh represented the IHO Secretariat.

The IHO provided a report on the status on the S-100 framework Standard and the current Product Specification under development. He also reported on the status of the IHO Registry application and its relevance to IHO standards development.

The group discussed various overarching issues related to the development of Guidance documents and the role of the participating Organizations. The meeting considered how to balance the challenge of providing high-level guidance on technical matter of harmonizing the format and structure of the e-navigations Marine Service Portfolio (MSP) concept.

There were also discussions on the development of a unique identifier (ID) mechanism for the maritime domain. It was agreed that this could be a key enabler to facilitate inter-operability between services and to facilitate machine to machine communication. Marine Service Portfolios and their relationship to Global Maritime Distress and Safety System (GMDSS) sea areas were also discussed.

GEO-XIV PLENARY

Washington DC, USA, 25-26 October

GEO, the “Group on Earth Observations” is a voluntary partnership of governments and international organizations. GEO was launched in 2003 in response to calls for action by the 2002 World Summit on Sustainable Development and by the G8 (Group of Eight) leading industrialized countries. GEO is coordinating efforts to build a Global Earth Observation System of Systems (GEOSS) in order to exploit the growing potential of Earth observations to support decision making in an increasingly complex and environmentally stressed world.

GEO’s Members now include 105 Governments and the European Commission. In addition, 115 intergovernmental, international, and regional organizations with a mandate in Earth observation or related issues have been recognized as Participating Organizations. The IHO was recognized as a Participating Organization in 2006. GEO meets annually in plenary session. Its strategic guidance is provided by a Ministerial Summit which takes place about every three years. The GEOSS Implementation Plan has been steered by the GEO Co-Chairs (four Members: China, European Commission, South Africa, and USA) and the Executive Committee (sixteen Members selected on a geographical basis).

The 14th GEO Plenary Session (GEO-XIV) took place in Washington DC, USA on 25 and 26 October, chaired by Mr Stephen Volz (United States) who is one of the Co-Chairs of the GEO. The meeting was also combined with side events and exhibitions that highlighted and promoted the role, applications and opportunities to use Earth observations in delivering “Insight for a changing world”. More than 500 representatives from Members and Participating Organizations and Observers attended the plenary. Director Mustafa Iptes represented the IHO.



GEO-XIV plenary in session.

The GEO-XIV Plenary was held in panel format, in general, to incorporate more participation from diverse arenas, including the commercial sector, in order to help the GEO community transition from a data-centric to a user-centric approach. The first day of the plenary focused on different perspectives of Earth observations and the following topics were broadly discussed at the panel sessions:

- Earth Observations in Public Policy; city and country level policy makers examined the current use of data to inform public policy.
- Earth Observations in the Commercial Sector; decision makers from private sector explored current uses of Earth observations by commercial companies to assess and manage risks, thereby optimizing their investments.

- Earth Observations in International Development; representatives from national and international funding and development agencies discussed their role and interest in increasing the world's Earth observation capacity, and how this is incorporated in their own policies and programmes.

The second day of the plenary reviewed and updated the 2017-2019 GEO Work Programme and the 2018 budget. The GEO Work Programme includes 34 Community Activities, 24 Initiatives, four Flagship projects and 10 Foundational Tasks. Among the GEO Initiatives, the "*Oceans and Society: Blue Planet Initiative*" aims to ensure the sustained development and use of ocean and coastal observations for the benefit of society.

At the end of the plenary, the last panel discussion on "National Earth Observations" was held. Representatives from developed and developing GEO Member States discussed the value and best practices in developing and accessing national Earth observation portfolios.

The next GEO meeting will be held in Kyoto, Japan in 2018. All the documents considered at the meeting and the IHO Statement provided for the GEO-XIV plenary are available at: <http://www.earthobservations.org/geo14.php>

5TH MEETING OF THE WMO-IOC JOINT TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY

Geneva, Switzerland, 25-29 October

JCOMM, the Joint Technical Commission for Oceanography and Marine Meteorology, is an intergovernmental body of technical experts that provides a mechanism for international coordination of oceanographic and marine meteorological observing, data management and services, combining the expertise, technologies and capacity building capabilities of the meteorological and oceanographic communities. The creation of this Joint Technical Commission resulted from a general recognition that worldwide improvements in coordination and efficiency could be achieved by combining the expertise and technological capabilities of World Meteorological Organization (WMO) and UNESCO's Intergovernmental Oceanographic Commission (IOC).



JCOMM Technical Conference in session

The 5th meeting of JCOMM was held at WMO Headquarters in Geneva, Switzerland, from 25 to 29 October; it was preceded by a two day technical conference on 23-24 October. Assistant Director David Wyatt represented the IHO.



*Assistant Director Wyatt
addressing
the JCOMM Technical Conference*

The conference was organized to provide an overview of the advances in marine meteorological and oceanographic (metocean) observing systems, data management and services developed and continued during the JCOMM-5 intersessional period. The aim was to properly interface the JCOMM management and expert groups with the IOC-WMO Member activities and have them interact with a large community of stakeholders worldwide, gathered at the JCOMM-5 Session. The session of particular interest to the IHO was Session 4 – *Integrated Meteo-hydro-marine-ocean services and methodological and implementation aspects of met-ocean state assessments* – which covered integrated observing and modelling systems developed to serve as a knowledge and operational basis for Disaster Risk Reduction and the Multi-Hazard early warning systems. Presentations covered observational needs, modelling challenges and

experiences, as well as decision support systems stemming out of observing and modelling systems. The session also addressed the question of methodological and implementation aspects of met-ocean state assessments, including the regular process for Global Reporting and Assessment of the State of the Marine Environment from both WMO and IOC. The IHO representative gave a presentation on the lack of global bathymetric coverage and the potential impacts of this lack of coverage has on WMO and IOC model forecasts results.



JCOMM-5 plenary in session

The JCOMM-5 meeting covered numerous topics concerning the governing bodies on the WMO and IOC; Climate research and services; Disaster Risk Reduction, early warning and operation services; Sustainable Development Goals; Marine Meteorological and Oceanographic services and forecasting systems; Data management, exchange and information systems; Integrated observing systems; and a review of technical regulations, which included WMO Manual 558 – *Marine Meteorological Services* - the manual for the delivery of services under the IMO/WMO World-Wide Met-Ocean Information and Warning Service (WWMIWS).

Of particular interest to the IHO were the discussions on the WMO engagement with marine meteorological services, coastal inundation forecasting, the Global Multi-hazard Alert System (GMAS) and the implementation of the Met-ocean observing system. The IHO proposed a number of amendments to document JCOMM5/5/1 – *Services and Forecasting Systems Programme Area (SFSPA) Vision, new Structure and Governance* – which included the establishment of the Worldwide Met-Ocean Information and Warning Service (WWMIWS) Committee to replace the Expert Team on Maritime Safety Services (ETMSS) and the establishment of a network of National Marine Services Focal Points, which closely replicates the network of Nation Coordinators within the NAVAREA framework, and to which Committee the IHO will be requested to nominate a representative. In addition the JCOMM noted the work by the IHO and IALA to progress the IMO e-navigation framework using the data standards and formats of the IHO S-100 (Universal Hydrographic Data Model) for the display of communication information on integrated bridge displays. Additionally the IHO proposed minor amendments to JCOMM5/9/1 – *Revised Manual on Marine Meteorological Services (WMO-NO. 558)* – to ensure terminology was in harmony with other MSI documentation.

The IHO was highlighted as a key partner of the WMO and IOC within the JCOMM framework; the contribution of and the engagement with the IHO was noted in a number of documents presented to the plenary. The continued close engagement and cooperation between IHO, WMO and IOC remains essential for the progress of a number of IHO programmes and initiatives, such as Crowd Sourced Bathymetry (CSB), GEBCO, the World-Wide Navigational Warning Service (WWNWS) and provision of maritime safety information (MSI), global sea level observing and disaster risk reduction and management.

Current co-presidents of JCOMM, Mr Johan Stander (South Africa) and Professor Nadia Pinardi (Italy) were re-elected to serve until JCOMM-6. All meeting documents are available from the JCOMM-5 website.

NOVEMBER

10TH JOINT IHO/IMO/WMO/IOC/IALA/IAEA/FIG/IMPA CAPACITY BUILDING COORDINATION MEETING Saint-Germain-en-Laye, France, 7-8 November

The 10th Joint IHO/IMO/WMO/IOC/IALA/IAEA/FIG/IMPA Capacity Building (CB) Coordination Meeting was held on 7-8 November, at the International Association of Aids to Navigation and Lighthouse Authorities (IALA) Headquarters in Saint-Germain-en-Laye, France. The annual meeting brought together nine representatives from the IHO, IMO, WMO, IOC, IALA and IMPA. The IAEA and FIG were not represented at the meeting. The IHO was represented by Mr Thomas Dehling (National Hydrographer of Germany), Chair of the Capacity Building Sub-Committee (CBSC), and IHO Assistant Director Alberto Costa Neves, CBSC Secretary.

The International Maritime Pilots Association (IMPA) was represented in the meeting for the first time and has been a permanent member of the Joint Group. IMPA represents the international community of pilots, over 8,000 members in 48 countries, to promote effective safety outcomes in pilotage as an essential public service. IMPA is recognized as an observing organization at the IHO and at the IMO. The participation of IMPA is particularly significant for the assessment component of CB for assisting in identifying areas where more capacity is required from a users' perspective.

In his opening speech, IALA Secretary-General Francis Zachariae highlighted the importance of coordinating the efforts of international organizations for building and developing capacity in the maritime and marine community. These efforts are in line with the UN concept of "Delivering as one" for coherent and coordinated work when supporting developing countries. This external support for providing effective support to these countries has the benefit of creating conditions for enhanced communication and cooperation within the country.

Participants presented the strategies and the management of their CB programmes, reported on their CB activities since the last meeting and shared lessons learned, best practices, standardization procedures and experience in dealing with funding agencies. The IHO representatives reported on developments including the impact of the IHO CB Strategy, the status of joint projects and the overall CB achievements. The joint work also promotes the awareness for the benefits of working with the international community for a sustainable development of the national infrastructure.

The meeting recognized the importance of the IMO as the mother-ship of the maritime community with its membership of 172 States, numerous observers and very relevant ensemble of international conventions. It also recognized the importance of the other international organizations in working with the IMO Technical Cooperation Committee to provide support to coastal States in their preparation for the IMO Member State Audit Scheme (IMSAS) and in responding to the deficiencies identified in areas where other organizations have a mandate (e.g. WMO, IHO and IALA in SOLAS Chapter V).

The IHO representatives informed the meeting of the continuous efforts of the IHO to communicate to the IMO and its Member States by providing papers to the IMO/TC, in addition to those presented in a joint manner. The paper submitted to the IMO/TC 67 recalled the work done by the IHO for the benefit of IMO Member States that are not members of the IHO, in support of fulfilling their obligations arising from SOLAS. It also indicated a reduction in the level of CB support available from the IHO for those IMO Member States that are not members of the IHO, due to the adoption of the IHO CB Strategy in 2014.

The meeting recognized the importance of joint attention to improving the availability of online resources to complement the face-to-face trainings and workshops, to integrate the organizations' calendars for CB activities with a view on "delivering as one", to develop impact assessment strategies to monitor the effectiveness of the CB efforts. Participants reviewed the outcome of the recent meeting of the WMO/IOC Joint Commission on Oceanography and Marine Meteorology (JCOMM) and the benefits of performing coordinated assessments in NAVAREAs and METAREAs, and the possibility of using IOC Ocean Teacher for hosting online trainings developed by other organizations (e.g. the Maritime Safety Information training sponsored by the IHO/CBSC).



The Participants of the 10th Joint IHO/IMO/WMO/IOC/IALA/IAEA/FIG/IMPA Capacity Building Coordination Meeting at the IALA Headquarters

The meeting considered the synergies for the execution of the CB programmes for 2017/2018, the possibilities for improving the exchange of information related to the needs assessments in coastal States, the possibility of developing and maintaining a page for the CB Group with the objective of improving the visibility and awareness of the joint efforts for "delivering as one".

The meeting continued the work on the identification of a suitable region (such as the Caribbean, South-West Pacific or West Africa) for the development of a joint regional project to seek funding from donor agencies. Initial targets were identified at regional and national levels and the organizations agreed to work intersessionally to select the region/country and to outline the scope of work. Participants also considered the assessments made by the organizations regarding the lack of implementation of national MSI infrastructures in accordance with the recommendations of the Joint IMO/IHO/WMO Manual on Maritime Safety Information and agreed to work with the relevant bodies to take action and reduce the gap in some developing countries.

Participants took advantage of the meeting to advance coordination of specific activities, in particular those related to the Joint Technical Visit to Sudan (IMO, IHO and IALA) and possibly to Guatemala, El Salvador, Dominican Republic and others.

The next Joint CB Coordination Meeting will take place on 15-16 October 2018 in London, UK, and will be hosted by IMPA onboard the HMS Wellington.

9TH MEETING OF THE IHO HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE (HSSC)

Ottawa, Canada, 6-10 November

The ninth meeting of the Hydrographic Services and Standards Committee (HSSC) was hosted by the Canadian Hydrographic Service (CHS). The meeting took place at the Fairmount Château Laurier Hotel in Ottawa, Canada, from 6 to 10 November. The Director General of CHS, Mr Denis Hains, opened the meeting and welcomed participants to Ottawa.

The meeting was chaired by Acting Chair of the HSSC Mr Mike Prince, Australia, and was attended by 56 representatives from 22 Member States, the IHO Secretariat, and six international organizations were accredited as observers. The IHO Secretary-General Dr Mathias Jonas, Director Abri Kampfer and Assistant Directors Yves Guillam and Anthony Pharaoh represented the IHO Secretariat.

The Chair Group, composed of the Chairs of the HSSC and its subordinate bodies, met on 6 November to discuss the major items on the agenda and prepare consolidated proposals for the further consideration of the Committee.

The Committee reviewed the activities, proposals, and work plans of its subordinate bodies and the decisions of other organs and organizations affecting its work and decided a number of resultant actions.



HSSC9 participants

A summary of the main outcomes is described below:

IHO Assembly-1 Decisions related to HSSC

The HSSC Chair reported that there were several issues related to the work of the HSSC and its subordinate bodies that were discussed at the first IHO Assembly. The most significant item affecting the HSSC was the task of adding an annex to IHO Resolution 2/2007 – *Principles and Procedures for Making Changes to IHO Technical Standards and Specifications* – providing guidance on the procedure for conducting impact studies.

Decisions from the IHO Council (C-1) affecting HSSC

The HSSC decided to consider the amendments to IHO Resolution 2/2007 requested by the Assembly in two steps, as a consequence of the decisions made at C-1; since it was endorsed that the procedure for approving proposals made by HSSC and IRCC will remain the same until the 2nd Session of the IHO Assembly (A-2). HSSC was therefore invited to consider its Terms of Reference (TORs) in parallel to the revision of IHO Resolution 2/2007, as amended, and to

submit further amendments for endorsement at the 3rd meeting of the Council for approval at A-2.

IHO publications S-66 Ed. 1.1.0, S-57 Appendix B.1, Annex A, Ed. 4.1.0 and S-11 Part A, Ed. 3.1.0 were endorsed by the Council and IHO Circular Letters seeking the approval of Member States have been issued accordingly.

The HSSC Members were informed of the key priorities of the IHO Work Programme 2 – *Hydrographic Services and Standards* – that were highlighted and endorsed at C-1.

It was also noted that the Council tasked HSSC to establish a prioritized list of work items that need Special Project funding: the three requests made at HSSC-9 (development of the S-101 Portrayal Catalogue and Portrayal Catalogue Builder, creation of S-58 datasets, development of S-127 – *Traffic Management* – product specification), were approved for funding.

S-100 and related activities

The S-100WG Chair reported that S-100 Ed 3.0.0 had been published in June 2017 and a schedule for the publication of future editions of S-100 in order to accommodate maintenance and extension to the standard was proposed and adopted.

It was noted that the draft Edition 1.0.0 of the S-100 Interoperability Specification, applicable to navigation systems only, had been completed by the S-100WG and the S-98 number was allocated to this publication.

The Committee welcomed the nomination of Mr Al Armstrong as the new S-101 Project Team Chair, noting that the development of S-101 ENC is clearly identified as the cornerstone of the IHO Work Programme 2. The participants also welcomed the progress made in the development of S-121 – *Maritime Limits and Boundaries* – which is expected, by the United Nations Division for Oceans and Law of the Sea (DOALOS), to enable Member States to meet their obligations to deposit their maritime limits and boundaries (more information on: www.s-121.com).

Noting the upcoming availability of S-100 based products, proposals were made to implement robust validation checks procedures, and to use the test bed platform under development by the Republic of Korea, in general, and the validation tool developed by Canada for S-111 – *Surface Currents*.

The Committee noted the good progress made in the development of nautical information S-100 based products, such as S-122 – *Marine Protected Areas* – and S-123 – *Radio Services* – and the forthcoming challenges (effective and harmonized production, quality insurance, distribution, carriage requirements, etc.) associated with the publication of S-100 based product specifications and commissioning of S-100 based products. It was recommended that discussions on possible implementation and production plans should start in the working groups, regional hydrographic commissions, and other appropriate IHO bodies.

The HSSC agreed on the critical need for the Data Quality Working Group (DQWG) to pursue its activities, and new Terms of Reference were adopted aiming to ensure that data quality aspects are addressed in an appropriate and harmonized way for all S-100 based Product Specifications. The quality indicators for bathymetric data in S-57 ENCs and S-101 ENCs remains a critical issue that was addressed, on one hand through the development of the draft of a new publication S-67 – *Mariners' Guide to Accuracy and Reliability of ENC* – and on the other through the presentation of a possible conditional visualization methodology.

ECDIS matters and Nautical Cartography

The ENCWG Chair reported on the revisions to a number of IHO publications completed in 2017 (S-52; S-64; S-57 UOC¹⁶, S-58, S-65 and S-66). Fruitful discussions on high density bathymetric contours in ENCs led to the conclusion that the ENCWG needed to identify the current

¹⁶ Use of the Object Catalogue.

limitations in S-57, while ENC Producers will be invited to include more contour lines in their ENCs as appropriate. Various concerns raised by INTERTANKO in its report (un-assessed CATZOC areas, high density contour lines, T&Ps, portrayal issues) provided useful mariners feedback and were addressed at the meeting as part of the ENCWG report.

The NCWG reported that Edition 4.7.0 of S-4 had been issued and the study on the “future of paper chart” was now being progressed by a sub-group. The HSSC requested the NCWG to consider recent investigation reports covering nautical accidents and to provide recommendations for amending the IHO standards and guidance documents if appropriate.

The Committee noted the informative report of the representative of the International Electro Technical Commission (IEC). The representative of the IEC presented the typical time line required to produce a major new revision of an IEC standard, which includes S-100 concepts for ECDIS, as well as the IEC concept of stability date.

Hydrographic Surveys Project Team (HSPT)

The HSPT reported that a number of the limitations in the current version of S-44 were identified at its first meeting and a questionnaire had been produced, which was intended to gauge the views of users and stakeholders. The Committee encouraged the HSPT to pursue its work under the proposed course of actions which includes the development of a matrix approach for the next Edition of S-44. The submission of Ed. 6 of S-44 for endorsement by HSSC is targeted in 2019-20.

Relations with other bodies and Stakeholders

The Committee welcomed the various presentations given by Chair of the Inter-Regional Coordination Committee, the stakeholders and expert contributors. The HSSC benefited in particular from the informative report by the Open Geospatial Consortium (OGC), and from the user perspective provided by INTERTANKO. The awareness report provided by the International Cable Protection Committee (ICPC) was welcomed and further actions covering cables data release, associated surveys, and the charting of cables were identified.

Chairmanship

At the end of the meeting, Captain Luigi Sinapi (Italy) and Mr Michael Prince (Australia) were elected as Chair and Vice-Chair of the HSSC respectively for the period of 2017 to 2020.

Next Meeting

The next meeting of the HSSC (HSSC-10) is scheduled to be held in Rostock-Warnemünde, Germany from 14 to 17 May 2018. Future HSSC meetings are also to be held at this time of year in order to synchronize the resulting reporting activities with the schedule of the IHO Council.

More Information

All documents considered at the meeting and further information are available on the IHO web site at Home > Committees & WG > HSSC.

IALA SEMINAR ON ARCTIC NAVIGATION

IALA Headquarters, Saint-Germain-en-Laye, France, 9 to 10 November

The IALA Seminar on Arctic Navigation was a follow up on a meeting held in February 2010 at the IALA Headquarters attended by Arctic nations where a number of actions were agreed by the participants. This seminar was attended by 38 delegates, representing 8 countries and 6 Sister organizations. The IHO was represented by the Secretary-General, Dr Mathias JONAS.

The seminar was structured with presentations on relevant topics on Arctic navigation. The views on the challenges of ensuring safe navigation in Arctic waters of all Arctic nations and international organizations which have an interest in this field, were discussed. The Seminar addressed the needs identified by the Arctic Council concerning hydrography, marine aids to navigation and maritime services. The current status and plans were considered, with regards to weather and climate, commercial shipping, position, navigation and timing (PNT), communications, data exchange, risk assessment, traffic awareness and monitoring, and other relevant topics. The purpose of the Seminar for nations and organizations which provide maritime services in the Arctic was to exchange information and develop views on:

- traffic awareness, ship reporting and data sharing;
- maritime digital information services;
- positioning services;
- marine aids to navigation.

During the Seminar the following suggestions, remarks and observations were made by participants:

- There is still a large need for information-exchange and learning about each other's initiatives, work and projects. There seem to be a number of individual initiatives that are not all involving relevant partners and stakeholders.
- There is a concern about the large number of "databases" presently developed or planned. There is a need to join forces and concentrate resources on a few, relevant, sites/portals.
- A harmonized approach should be adopted for marking polar routes, combining data sharing with common standards of provision and web-based services.
- IALA-NET could be a common platform for collecting and making available AIS data via satellite, if the relevant IALA Members agree to cooperate.
- Virtual AtoNs, Area Notices and other e-navigation services using VDES-SAT could be an important contribution to safety of Arctic navigation, but the frequency allocation needs to be supported at ITU.
- A multi-system approach should be developed for resilient PNT, using a mixture of GNSS and terrestrial systems and a multi-system receiver.
- Global warming is happening which is opening up new Polar routes and increasing summer availability.
- Ice Navigation needs specialist skills to support safe passage.
- Arctic adventure tourism is increasing and this is set to continue.
- The Arctic is still not used as a short cut "over the top" transit route due to concerns about reliability of passage with the present bunker prices.
- There is a significant shortage of hydrographic survey data to give a comprehensive set of ENC for Arctic voyages.
- Offshore exploration and mineral exploitation are likely to continue in the region and traffic for tourism is increasing.
- Avoiding accidents and environmental damage is critically important, since SAR and pollution control resources are limited and operational conditions are difficult.
- The area of the Polar code is limited and should be extended to include other areas of higher traffic density, also subject to ice conditions.

- STM provides coordinated real time data, route exchange, port call synchronization, with email/voice confirmation.
- Sharing information and the need for cooperation in developing VDES applications to provide communication solutions in Arctic.
- Arctic Web - free to use, open source development – provides tailored weather and ocean current forecasts and ice charts – supports voyage risk management, routing decisions and SAR online services.
- Ideally, from the operators’ point of view, there would be one integrated information system for the Arctic, but this may not be achievable politically. Common service specifications would be an important step, allowing easy, reliable exchange of information.
- Improved communication of Vessel Traffic Services (MSP 5) depends on standardized, digital solutions (S-100), for MSI, ice routing etc., leading to an open bridge, not dependent on proprietary equipment.
- New NAVAREAs established a decade ago. E-navigation services, including VTS, must be provided for these areas. VDE-SAT could be an important contribution to providing the necessary connectivity.
- Maritime Connectivity Platform (MCP) can be used for information exchange via online services, utilizing communications available (ref. IALA MRCP). VDES provides a closed network with built-in security and authentication for e-navigation services.
- Main challenge for VDES is adoption by ship owners and manufacturers. Second greatest challenge for VDES in the Arctic is adoption by shore authorities, in competition with other investments in infrastructure.
- Need to free up frequencies for VDES and upgrade infrastructure to handle higher data rates and produce data in standard formats. Can share infrastructure, information systems and develop data sharing tools.
- Need both VDES and MCP in Arctic communications in a coordinated technical solution.



*Participants of the IALA Seminar on Arctic Navigation,
IALA Headquarters, Saint-Germain-en-Laye, France*

Six conclusions were agreed on the second day of the Seminar:

1. A harmonized approach should be adopted for marking polar routes and providing digital services with common standards of provision, web-based services and other means.
2. IALA-NET is a suitable platform for exchanging and storing historical AIS data for statistical analysis and the use of Risk Management tools.
3. Since connectivity is a primary enabler for development in the Arctic, the limited communication infrastructure continues to be a major challenge.
4. VDES-SAT could provide virtual AtoNs and other e-navigation services in the arctic. The frequency allocation needs to be supported at ITU.

5. A multi-system approach should be developed for resilient PNT, using a mixture of GNSS and terrestrial systems and a multi-system receiver.
6. There is a significant shortage of hydrographic survey data to give a comprehensive set of (simplified) ENC for Arctic voyages. Crowd sourcing of hydrographic data can give a significant contribution.

Relevant input for conclusion Nr 6 was given by the IHO Secretary-General by means of his presentation “Present hydrographic data and plans”.

The conclusions resulted from the seminar will be forwarded to the IALA Council to note and to all IALA Committees for future development.

IHO-IOC GEBCO PROJECT (GENERAL BATHYMETRIC CHART OF THE OCEANS) ANNUAL MEETINGS

Busan, Republic of Korea, 13 – 17 November

A series of meetings related to the IHO-IOC GEBCO (General Bathymetric Chart of the Oceans) project were held in Busan, Republic of Korea from 13 to 17 November:

- 13 and 14 November: Joint meeting of the Technical Sub-Committee on Ocean Mapping (TSCOM), the Sub-Committee on Regional Undersea Mapping (SCRUM) and the Outreach Working Group (OWG);
- 15 November: GEBCO Symposium; and
- 16 and 17 November: 34th Meeting of the GEBCO Guiding Committee (GGC).

The IHO Secretariat was represented at the joint TSCOM, SCRUM and OWG meeting by Assistant Directors Anthony Pharaoh and David Wyatt who were joined by Director Mustafa Iptes for the GEBCO Symposium and the meeting of the GGC.

TSCOM, SCRUM and OWG

The joint meeting of TSCOM-SCRUM was co-chaired by Dr Karen Marks (USA), Chair of TSCOM, and Dr Vicki Ferrini (USA), Chair of SCRUM.



TSCOM, SCRUM and OWG in plenary session

Update reports were provided on the following regional mapping projects: Indian Ocean Bathymetric Compilation (IOBC), North Atlantic Seabed Mapping Project, International Bathymetric Chart of the Arctic Ocean (IBCAO) and International Bathymetric Chart of the Southern Ocean (IBCSO).

The participants considered in detail the proposed Seabed 2030 Project. The Seabed 2030 Project Establishment Team presented the activities undertaken during the period since GGC33, which were discussed in detail during the breakout sessions. A number of challenges and gaps were identified, which needed further investigation. It was recognised that the relationship with the GGC and with other bodies required refinement. Professor Hyo Hyun Sung, Chair of the OWG, presented a detailed update on activities, initiatives and considerations and during the subsequent discussions the participants discussed ways to expand the communications beyond the education focus and how the OWG should support and complement the Seabed 2030 project.

GEBCO Symposium

For the eleventh consecutive year, the GEBCO project organized a symposium, formerly the “GEBCO Bathymetric Science Day” on the theme of ‘Map the Gaps’. The symposium, which included poster sessions and contributions from a broad spectrum of institutions involved in all aspects of ocean mapping, featured 24 presentations on a diverse range of topics. The associated presentations will be available from the GEBCO web site at: (https://www.gebco.net/about_us/gebco_symposium/).



Director Iptes addressing the GEBCO Symposium

GEBCO Guiding Committee

The majority of the IHO representatives on the GEBCO Guiding Committee were present with only Rear Admiral Patricio Carrasco (Chile) and Dr Graham Allen (United Kingdom) who were unable to attend. Representatives of Canada, France, Germany, Israel, Japan, Republic of Korea, United Kingdom, USA, IOC and IHO attended the meeting as observers as well as a representative from Fugro as an expert contributor.

The Chair, Mr Shin Tani (IHO - Japan), introduced the agenda and programme. The GGC received brief reports from its Sub-Committees and Working Groups and endorsed the work which they had undertaken. The GGC also received reports from key personnel performing functions on behalf of GEBCO as well as reports from its parent bodies - IHO and IOC, on activities since the previous meeting.

The Chair of the Sub-Committee on Undersea Feature Names (SCUFN) highlighted the number of members who were coming to the end of their terms and the challenge of finding suitably qualified replacements. He presented some proposed revision to the SCUFN Terms of Reference (ToRs) and Rules of Procedure (RoPs), which were aimed at clarifying the procedures for future meetings. The GGC did not approve the amendments and advised the Chair SCUFN to continue to operate under the current ToRs and RoPs with an option to review the situation prior to the next GGC meeting.

The GGC discussed outreach and ways to raise the profile of the GEBCO project among the different stakeholder and user communities including the IHO and the IOC Member States, the maritime and scientific community and the general public. It was noted that different strategies would be required for each of these groups and that it was a key component of the GEBCO activities, which involved and influenced all aspects of the future of the GEBCO Project. The GGC agreed to elevate the status of the OWG to a new Sub-Committee in order to reflect the importance of external relations and communications. It was agreed that revised ToRs and RoPs should be drafted along with a new communications strategy. The GGC devoted considerable time to discussions on the Seabed 2030 Project, including its structure, governance, oversight and reporting. The Seabed 2030 Project Establishment Team requested GGC endorsement to continue the development of the project, including the selection of a Project Director and the necessary structure to oversee the project.



GEBCO Guiding Committee members at GGC34

The GGC also reviewed its current financial situation in relation to proposed planned projects. The Committee addressed the budget submissions from its subordinate bodies and approved revised allocations to ensure a contingency balance of 13,000€ was maintained for 2018 to cover emergent items. The IOC confirmed the annual allocation of 10,000€ to the GEBCO Project and it was agreed that this should be used to commence work on upgrading and improving the GEBCO website. The draft consolidated GEBCO Work Plan and budget will be reported to the

10th meeting of the IHO Inter-Regional Coordination Committee (IRCC) and the 51st meeting of the IOC Executive Council, for consideration and endorsement.

The next GEBCO annual meetings are scheduled to take place from 5 to 9 November 2018 in Canberra, Australia.

45TH MEETING OF ISO/TC 211

Wellington, New Zealand, 27 November to 1 December

Standards New Zealand hosted the 45th meeting of the International Organization for Standardization (ISO) - Technical Committee 211 (ISO/TC211) which took place at the Victoria University in Wellington, New Zealand. The ISO TC211 deals with the development of standards and specifications for the geospatial domain. The International Hydrographic Organization (IHO) is a Class A liaison member of ISO TC211 and participates in its standards development and maintenance Working Groups. The TC211 19100 series of standards and specifications have been used for the development of the IHO S-100 Universal Hydrographic Data Model. Assistant Director Anthony Pharaoh represented the IHO Secretariat at the Working Group and Plenary meetings.



45th ISO/TC211 Plenary Meeting Members.

ISO requires that all standards undergo regular revisions to ensure that they remain fit for purpose. The 45th plenary meeting approved the revision of the 19152:2012 Land Administration Domain Model (LADM) standard. The International Federation of Surveyors (FIG) agreed to hold a LADM Workshop in Zagreb, Croatia from 12 to 13 April 2018. The meeting also agreed that a systematic review should be carried out for the following standards; 19144 Classification system - Part 2: Land cover meta language (LCML); 19159-1 Calibration and validation of remote sensing imagery sensors and data - Part 1: Optical sensors; 19117 Portrayal and ISO 19155 Place Identifier (PI) architecture.

Due to extensive work being undertaken by the Open Geospatial Consortium (OGC) on geospatial web services, it was decided to cancel the current revision projects for the 19142 (Web Feature Service) and 19143 (Filter encoding) standards until the OGC projects have been completed.

The plenary meeting agreed to use the domain name “isotc211.org” for web access to all its official resources, including the 19100 XML Implementation Schemas, XML Codelists, XML example files, ontologies, UML files and profiles of standards.

In response to a discussion on different methods of data classification, it was agreed to hold a classification workshop during the 46th meeting which will take place in May 2018. Participants will be invited to report on their experiences using a top-down and bottom-up approach to classification.

An outreach seminar was held during the course of the meeting. Presentations were provided on; a project (by Australia and New Zealand) to build a geospatial knowledge infrastructure using linked data resources; the OGC’s Discrete Global Grid Systems

(DGGS) Abstract Specification; and an Australian initiative to produce a cross-walk of metadata catalogues.

The 46th working group and plenary meeting is scheduled to take place from the 28 May to the 1 June 2018 in Copenhagen, Denmark.

18TH MEETING OF THE MESO AMERICAN - CARIBBEAN SEA HYDROGRAPHIC COMMISSION (MACHC)

Varadero, Cuba, 29 November - 2 December

The 18th Meeting of the Meso-American - Caribbean Sea Hydrographic Commission (MACHC) was held in Varadero, Cuba from 29 November to 2 December with 52 participants representing 9 Member States, 10 Associate Members, one observer country, five observer organizations and five commercial companies. Director Mustafa Iptes and Assistant Director Alberto Costa Neves represented the IHO Secretariat.



Participants to the 18th Meeting of the Meso American – Caribbean Sea Hydrographic Commission

The meeting was hosted by the National Office of Hydrography and Geodesy (ONHG) of Cuba at Hotel Meliá "Marina Varadero" and chaired by Rear Admiral Henrique Flores Morado, Chair of the Commission and National Hydrographer of Mexico. The meeting was opened by Rear Admiral Carlos Augusto Duque Ramos, Chief of the Cuban Revolutionary Navy. He highlighted the severe natural disasters that impacted the region with a high toll of human lives, the importance of knowing the sea floor for an effective maritime policy and the benefits of the IHO Capacity Building support to Cuba at several levels.

An IHO Capacity Building seminar held on 27 and 28 November with regards to "Hydrographic Governance and Managing Hydrography in Challenging Environments" preceded the Conference. The seminar received the contribution from the International Association of Aids to Navigation and Lighthouse Authorities (IALA) and from several industry stakeholders. Participants from 12 coastal States in the region received relevant information and actively contributed to the seminar.

The seminar was followed by the meetings of the MACHC Integrated Chart Coordination Committee (MICC), the Capacity Building Committee (CBC) and the Risk Assessment Working Group (RAWG). Ms Dawn Seepersad from the University of the West Indies (UWI) presented the preliminary results of her research topic on Risk Assessment in Maritime Navigation for the Greater Caribbean Region. The Commission subsequently decided to continue to support the UWI risk assessment research.

The agenda of the Commission meeting was arranged according to themes; developments in the region, impact of the work of the IHO bodies and of other international and regional organizations, reports from countries, surveying and risk assessment, spatial data infrastructures, nautical charts and publications, capacity building and response to disasters. Industry stakeholders also contributed to the various agenda topics.

The meeting was informed on the progress done by the MICC and of the significant progress in ENC coverage in the region with 60 new ENCs, three were cancelled, reaching 820 available cells in the region. ENC producing nations were urged to continue populating ENCs with meaningful CATZOC information in order to ensure safety of navigation, including assisting voyage planning that utilize CATZOC information.

The meeting was also updated on the cruise port gap analysis, which concluded that 43 out of the 373 world-wide cruise ship ports/anchorages not covered by Usage Band 4, 5, or 6 ENCs are located in the MACHC region. From these 43, 14 ports identified will have large scale ENC coverage in the next two years. The MICC also reported that 8 MACHC Members contribute to MACHC ENC Online Viewer: Brazil, Colombia, Cuba, Mexico, Netherlands, Suriname, USA and Venezuela.

As a direct consequence of the cooperation between the WWNWS-SC and the CBSC, Cuba and Haiti began supporting the issuing of Notices to Mariners and navigational warnings informing inconsistencies between AtoN and the nautical charts of their waters, for assistance of mariners in the region.

Participants were informed on the technical visit to Haiti jointly conducted by Brazil, France and USA, on the need and opportunities of continued professional development and hydrographic certification, on the outcomes of the Mexican FOCAHIMECA (Strengthen the Hydrographic Abilities in Mesoamerican and the Caribbean Sea) Project, on projects for surveying and charting inland waters in the region and on new tools for workflow management for nautical charting and digital publications.

In the context of the recent disasters that impacted on a number of countries in the region, the meeting was informed of the actions taken by France, Netherlands, United Kingdom and USA. The Conference agreed to investigate the creation of a GIS environment to facilitate the work of the MACHC Chair in support of the affected countries and the potential connections with the UN-GGIM Disaster Response Framework.

The next MACHC meeting will be held in Cartagena de Indias, Colombia from 28 November to 1 December 2018, preceded by a two-day Seminar on Disaster Response and MSI Responsibilities, scheduled on 26-27 November.

DECEMBER

30TH SESSION OF THE ASSEMBLY OF THE INTERNATIONAL MARITIME ORGANIZATION IMO Headquarters, London, UK, 27 November - 6 December

The Assembly is the main organ of the International Maritime Organization (IMO). It meets every two years and addresses a wide range of administrative and contentious operative issues. The 30th Assembly was attended by more than a thousand participants representing the vast majority of the overall 172 Member States and numerous observers – among them the IHO, represented by the Secretary-General, Dr Mathias JONAS for the first four days.

The core elements of each IMO Assembly are the regular reports of the subordinate committees such as:

- Maritime Safety Committee
- Legal Committee
- Marine Environment Protection Committee
- Technical Cooperation Committee
- Facilitation Committee



*IHO Secretary-General Dr Mathias Jonas
and IMO Secretary-General Kitack Lim
at a reception at the German Embassy
in London*

Before the respective committee chairs reported to the Assembly, the IMO Secretary-General Kitack Lim addressed the delegates with a thorough report on the Secretariat's performances. Numerous items of the IMO agenda are of potential relevance for the IHO Secretariat such as:

- The management of files and documents to turn information into knowledge.
- A web based solution to manage document workflow.
- The accessibility of voice recorded files of the Assembly and the Council via the IMODOCS website.
- The promotion of social media enhancing global awareness on the organization.

The Secretary-General reported further on the successful completion of the revision of the Strategic Plan for the Organization for the six-year period 2018 to 2023, including the Performance Indicators and the list of outputs, as well as the adjusted document on the Application of the Strategic Plan of the Organization together with the associated draft Assembly Resolutions. The systematics of this revision may

deliver a template for the similar process as just started by the IHO Council for the revision of the Strategic Work Plan of the IHO.

Another important element for the IHO to note was the formal adoption at the Assembly, of the future mandated implementation of the IMO Audit Scheme which will now encompass the eight important treaties under the umbrella of the IMO. Among the audited elements is SOLAS Chapter V Regulation 9 which explicitly states the obligation of the coastal States to undertake regular

survey and charting within their waters of responsibility. This is good news for the IHO since the need and the relevance of hydrography is now an inherent part of each audit and forces the coastal states to respond according to their respective activities. The audit output on this issue will add to a comprehensive image of the world's hydrographic activities which in combination with the information presented by the IHO allows a more precise target on joint capacity building activities.

The Assembly also discussed the problem of plastic litter induced by shipping and agreed to put this on the agenda of the Marine Environment Protection Committee calling for short notice action.

For the purpose of navigation in Polar Regions the delegates unanimously agreed to start the second phase of the polar code to target any shipping activity within this environmentally vulnerable region. The anticipated future activities will impact on the agenda of IHO's Regional Hydrographic Commissions for the Arctic and Antarctic Region as well.

The IHO Secretary-General took the opportunity to approach several IMO Member States to advertise for IHO membership and discussed ways to deepen the collaboration between IMO and IHO on the fields of technical standardization – namely the Harmonization Group on Data Modelling (HGDM) and aspects of joint activities in Capacity Building which need to be reactivated.

TECHNICAL VISIT TO EL SALVADOR

San Salvador, 4-7 December

At the invitation of the National Geographic and Cadastral Institute (*Instituto Geográfico y del Catastro Nacional* - ICGN), a technical visit to El Salvador, which was funded by the IHO Capacity Building Programme, was conducted from 4 to 7 December by IHO Assistant Director Alberto Costa Neves and Mr Jason Otero Torres from the National Geospatial-Intelligence Agency (NGA) of USA, the primary charting authority for El Salvador.



From left to right, Mr Carlos Figueroa (ICGN Geodesy Division), IHO Assistant Director Alberto Costa Neves, Ms Sonia Sánchez (ICGN Director), Mr Carlos Castañeda (Vice-Minister of Foreign Affairs), Mr Jason Otero Torres (USA-NGA) and Mr Licenciado Oscar Everardo Chicas (Director-General of Sovereignty and Territorial Integrity, MFA)

The visit program included internal meetings with authorities within ICGN and its parent organization, the National Registry Center (*Centro Nacional de Registros – CNR*), to communicate the benefits and importance of hydrography as part of the national infrastructure and to assess future plans. Meetings with relevant technical staff and visits to the ICGN facilities provided opportunity to assess the existing capacities for hydrographic surveys, chart production and Maritime Safety Information.

As part of the program, ICGN organized a half-day workshop with key stakeholders within the marine domain to discuss the importance of hydrography in their administrations. The workshop was attended by representatives of the Ministry of Foreign Affairs, Ministry of Environment, Ministry of Finance, Ministry of Tourism, Maritime and Port Authority, Directorate-General of Civil Protection, Navy, Autonomous Executive Port Commission and University of El Salvador.

The visiting team called on the Vice-Minister of Foreign Affairs, Mr Carlos Alfredo Castaneda and the Vice-Minister of Environment and Natural Resources, Dr Ángel María Ibarra. The team also visited the Port of Acajutla, the largest and most important port of El Salvador, the Environmental Observatory for risk monitoring, the Maritime and Port Authority and had a meeting with Capitan René Hernández, President of the Board of Directors, and Mr Mario Miranda, Executive-Director.

During the visit, the team engaged with the hosts to; establish a bilateral agreement with the primary charting authority, implement a national hydrographic committee, draft the terms of reference for the national coordinator for MSI, establish a plan for hydrographic development and other relevant actions. The outcome of the visit will be reported to all stakeholders, including a list of conclusions and recommendations.

Assistant Director Costa Neves was informed that El Salvador, as a coastal State in the Meso-American region, has a positive desire to join the IHO in the future and is actively considering becoming a member of the IHO.

4TH S-121 PROJECT TEAM MEETING

New York, USA, 4 – 8 December

The meeting was hosted by the United Nations Division for Ocean Affairs and the Law of the Sea (DOALOS) based in New York, USA. The following Member States were represented at the meeting; Australia, Canada, France, Korea, (Rep of), Sweden, United Kingdom and USA. Members from UN-DOALOS, IDON and Teledyne – Caris also participated in the meeting with Assistant Director Anthony Pharaoh representing the IHO. The Project Team (PT) comprises 13 Member States. In addition to the IHO, five other international bodies (UN-DOALOS, ABLOS, ISO TC211, INSPIRE, UN-GGIM), have indicated that they will participate in the work of the PT. The S-121 Product Specification provides a common standard for Maritime States to depositing their maritime limits and boundaries in a digital geospatial format.

The meeting carried out a review of the S-121 data model. There was general agreement that it was relatively mature and should not require further modification. The meeting agreed on several actions that included; submitting the MLB feature concepts for inclusion in the IHO Registry; finalisation of the data encoding format; extension of the portrayal section in order to support more generic GIS and Web service requirements. Further information on the S-121 Product Specification and the activities of the Project Team is available on the S-121 web site (<http://www.s-121.com>).

The next S-121 Project Team meeting is scheduled to take place in December 2018, at the offices of the UN-DOALOS.

5TH MEETING OF THE CROWD-SOURCED BATHYMETRY WORKING GROUP

IHO, Monaco, 5-6 December

The Crowd-Sourced Bathymetry Working Group (CSBWG) has been tasked by the Inter-Regional Coordination Committee (IRCC) to develop an IHO publication that provides guidance on the collection and use of Crowd-Sourced Bathymetry (CSB). This document will provide guidelines and advice on various considerations that should be taken into account when collecting CSB data for inclusion in the global bathymetric data set which is maintained in the IHO Data Centre for Digital Bathymetry (DCDB).

The working group held its fifth meeting at the Secretariat of the International Hydrographic



The participants of the 5th meeting of the CSBWG between sessions

Organization, Monaco, on 5 and 6 December. In the absence of the Chair of the CSBWG, Ms Jennifer Jencks (USA, Director of the DCDB), the Vice-Chair, Mr Serge Gosselin (Canada), chaired the meeting which was attended by representatives from eight Member States (Canada, Denmark, France, Italy, Nigeria, Norway, Portugal, UK and USA), and observers and expert contributors from the Baltic and International Maritime Council (BIMCO) and Sea-ID. Secretary-General Dr Mathias Jonas,

Director Mustafa Iptes and Assistant Director David Wyatt (Secretary) represented the IHO Secretariat.

The CSBWG received verbal reports from the chapter leads who had been tasked to coordinate the drafting of specific sections of the B-12 Guidelines. During the meeting the various draft chapters of the guidelines were developed further, taking into account the feedback received in response to IHO Circular Letter 49/2017. The final draft version of the B-12 Guidelines will be made available on the IHO website prior to the presentation to the IRCC at its 10th meeting in Goa, India, in June 2018. Subject to the endorsement of the IRCC, this will be followed by consideration by the IHO Council at its 2nd meeting and submitted for adoption by the IHO Member States towards the end of 2018. The participants also considered the future tasks which could be addressed by the WG in response to the discussions undertaken by IHO member States at Assembly-1 and Council-1 and initial proposed draft revisions to the ToRs were developed for further consideration.

It was agreed that that the Chair, Vice-Chair, Editor and chapter leads should meet to coordinate the final proofing of the document to be submitted to IRCC10. Immediately after the Canadian Hydrographic Conference in Vancouver on 30 March 2018 was identified as a suitable date and venue. It was further agreed that the next meeting of the working group should progress the work in preparing Edition 2.0.0 and review the outcomes of IRCC10 with respect to Council-1 instructions on expanding the scope of the tasks to be undertaken by the CSBWG. It is therefore planned to hold a sixth meeting of the CSBWG in Boulder, Colorado, USA on 19-21 June 2018.

The report of the meeting and the supporting papers will be available from the CSBWG section of the IHO web site: www.iho.int > Committees & WG > IRCC > CSBWG

NEW HYDROGRAPHERS

NAMES	COUNTRIES	DATES
Commodore Fiona FREEMAN, RAN	Australia	12/2017
Xu Xu RUQING *	China	01/2017
Vinka KOLIC, B. Sc *	Croatia	06/2017
Thomas DEHLING	Germany	10/2017
Ali Reza KHOJASTEH *	Iran (Islamic Republic of)	05/2017
Captain Leonardo Tun HUMBERT *	Mexico	07/2017
Captain Khalid LOUDIYI *	Morocco	01/2017
Commodore Chukwuemeka Ebenezer OKAFOR	Nigeria	09/2016
Captain Thani AL MAHROUKI *	Oman	10/2017
Rear Admiral David PORTILLA LINARES *	Peru	01/2017
Dong-Jae LEE *	Republic of Korea	03/2017
Mirko KOMAC, M. Sc *	Slovenia	06/2017
Theo STOKES *	South Africa	09/2017
Dmytro PADAKIN *	Ukraine	07/2017
Commander RDML John OKON *	USA	07/2017

* No C.V. received

NEW HYDROGRAPHER OF AUSTRALIA

As of 15 December 2017 Commodore Brett Brace, RAN retired as the Hydrographer of Australia and was replaced by Commodore Fiona Freeman, RAN. The following is short biography of her extensive career and experience.



Commodore Fiona Freeman was commissioned into the Royal Australian Navy in February 1988. During her 30 year career, she has specialised as a Hydrographic Surveyor and gained experience at sea and ashore in the areas of command, operations, training and human resource management.

As a Junior Officer, Fiona spent time at sea in HMA Ships *Stalwart*, *Flinders*, *Moresby* and *Paluma* and HMNZS *Monowai*. In 1992 she participated in Sail Training Ship *Young Endeavour's* circumnavigation of the globe as part of the international commemoration of Christopher Columbus' journey 500 years earlier. Fiona was aboard HMAS *Jervis Bay* when it deployed to Somalia in 1993 in support of Operation Solace.

Fiona has commanded at the operational level at sea as Commanding Officer HMAS *Benalla* (2002-3) and *HS Red* (2006-09). She has seen operational service under the United Nations mandate in East Timor (XO HMAS *Labuan* 2000) and participated in Australian Government Border Protection operations at sea (CO *HS Red* 2008). Fiona has also held a number of headquarter-level positions both in the Single Service (Navy) and the Joint environment in the areas of training, operational planning and human resources. In the training area she has been in charge of Navy Hydrographic specialist training. In the area of human resources she has been the lead career advisor for all Navy Junior Officers and subsequently, on promotion to Captain in 2011, the Director of Navy's Career Management Agency. Since then Fiona has been Director Military Options (J55) in the planning branch at Joint Operations Command and has also served as the Chief-of-Staff to the Vice Chief of the Defence Force and the Deputy Chief-of-Staff within Headquarters Navy Strategic Command. She assumed the role of Hydrographer of Australia on promotion to Commodore in December 2017.

Fiona is a graduate of both the United Kingdom's Higher Command and Staff Course and Australia's Centre for Defence and Strategic Studies. She holds Master Degrees in Management (Defence Studies), Arts (Strategic Studies) and Hydrographic Surveying.

NEW HYDROGRAPHER OF GERMANY



Thomas Dehling, was born on 23 November 1963 in Germany. He has been active in the work of the IHO since 2001. After contributing to different working groups within the BSHC and NSHC he joined Capacity Building in 2005. This has become a major topic in his international work, taking over the chairmanship of the CBSC in 2011. He has been involved in the Inter-Regional Coordination Committee work since the beginning and has recently been elected as the vice-chair of the IRCC.

Currently he is Chair of the Baltic Sea Hydrographic Commission.

Nationally he is engaged in Hydrography as well, where he chairs the German Hydrographic Society.

Looking further back into his career, he worked in different fields and joined the Federal Armed Forces of Germany in 1984 as a career officer for ten years. During his career in the Artillery Forces he held several positions; from 1985 to 1987 he studied at the University of the Federal Armed Forces of Germany in Munich and graduated in Master of Science in civil engineering in Geodesy (Dipl. Ing. für Vermessungswesen). At the end of his term he left with the rank of Captain.

He was then employed with the Government of the Federal State of Schleswig-Holstein in Kiel, Germany, where he studied administration in all fields of surveying and related matters graduating with a Second State Examination (Vermessungsassessor).

For a short period of 15 month he worked in the private sector together with the Chartered Surveyer Dr. Borgmann in Berlin. His tasks were cadastral and engineering surveys, controlling, data processing and evaluation as well as the acquisition of orders, education and auditing of surveying personnel.

Just before becoming a chartered surveyor himself he got the opportunity to change from land surveying to hydrography when he joined the Federal Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt und Hydrographie - BSH) in Hamburg as head of section for the Hydrographic Surveying and Wreck Search in the North Sea in 1998.

Only one year later in 1999 he became the Head of Hydrographic Surveying Division, moving from Hamburg to the office in Rostock. He has held this position for 18 years.

In October 2017, he was appointed as the new National Hydrographer of Germany, becoming the successor of Dr Mathias Jonas. Within the BSH he is now the Director of the nautical hydrography department and head of the Rostock office of the BSH.

NEW HYDROGRAPHER OF NIGERIA



I am **Commodore OKAFOR Chukwuemeka Ebenezer**.

Born on 19 April 1966 in Nigeria, I graduated from the Nigerian Defence Academy in 1990 with BSc (Hons) Mathematics and was commissioned as Sub-Lieutenant in the Nigerian Navy in September 1991. I have attended several military courses amongst which were Sub Lieutenant Technical Course at NNS QUORRA in Apapa from 1993 to 1994, Officers' Basic Hydrographic Course in International Maritime Academy Trieste, Italy in 1998 and Junior Staff Course at the Armed Forces Command and Staff College (AFCSC) Jaji in 2001. I also attended the Officers' Long Hydrographic Course in India from 2003 to 2004, Senior Staff Course from 2005 to 2006 at the AFCSC Jaji and National Defence Collage Nigeria from September 13 to

August 14. I have a Masters Degree in Hydrography from Goa University India, a Masters Degree in Transport Management (Shipping) from Ladoko Akintola University Ogbomosho, a Master in International Affairs and Diplomacy from the Ahmadu Bello University, Zaria and Masters in Strategic Studies from University of Ibadan.

I have held several appointments in the Nigerian Navy, prominent amongst which were Watch Keeping Officer onboard NNS EKUN and EKPE, Senior Hydrographic Surveyor onboard NNS LANA, Commanding Officer (CO) of NNS AGU and FOB BONNY and Deputy Director Chart Production at the NN Hydrographic Office Lagos. I also served, at various times, as the Instructor, Chief Instructor and CO of the NN Hydrographic School Port Harcourt. I was also a Directing Staff at the AFCSC and Deputy Director Hydrography at the Naval Headquarters, Abuja. The last post I held in the Nigerian Navy before my appointment as the Hydrographer of the Nigerian Navy was Deputy Director Campaign Planning (Maritime) at the Defence Headquarters, Abuja.

I am married to former Miss Ngozi Gloria Eze and the marriage is blessed with 4 children; 3 boys and a girl. I like reading, as well as listening to good Christian music. I dislike cheating and lies.