



## 19<sup>TH</sup> MEETING OF THE MESO AMERICAN – CARIBBEAN SEA HYDROGRAPHIC COMMISSION (MACHC) AND SEMINAR ON HYDROGRAPHIC GOVERNANCE AND DEALING WITH MARITIME DISASTERS Cartagena de Indias, Colombia, 26-30 November

### Contribution to the IHO Work Programme 2018

Task 3.2.1.5

Prepare for and report meetings of the Meso American – Caribbean Sea Regional Hydrographic Commission (MACHC)

The 19<sup>th</sup> Meeting of the Meso-American - Caribbean Sea Hydrographic Commission (MACHC) was held in Cartagena de Indias, Colombia from 26 to 30 November with 107 participants representing 13 Member States, nine Associate Members, four observer States, eight observer organizations and 10 commercial companies. Director Mustafa Iptes and Assistant Director Alberto Costa Neves represented the IHO Secretariat.



*Participants at the 19<sup>th</sup> Meeting of the Meso American – Caribbean Sea Hydrographic Commission*

The MACHC-19 was hosted by the General Maritime Directorate/*Dirección General Marítima* (DIMAR), the Colombian Maritime and Hydrographic Authorities and chaired by Rear Admiral Henrique Flores Morado, National Hydrographer of Mexico. The meeting was opened by Admiral Ernesto Durán González, Commander of the Colombian Navy, and by Vice Admiral Juan Manuel Soltau Ospina, Colombian Maritime Authority and National Hydrographer.





An IHO Capacity Building Seminar on Hydrographic Governance and dealing with Maritime Disasters was held on 26 and 27 November, preceding the Conference. The seminar received contributions from IHO Member States and the Secretariat, the International Association of Aids to Navigation and Lighthouse Authorities (IALA) and from several industry stakeholders. Participants from 18 coastal States in the region received relevant information and actively contributed to the seminar and to the development of a draft framework document to support the preparation and response to disasters in the region.

The seminar was followed by the meetings of the MACHC International Chart Coordination Committee (MICC), Capacity Building Committee (CBC) and Marine Economic Infrastructure Program (MEIP). The MACHC subsequently endorsed the change in name and status of MEIP to Marine Spatial Data Infrastructure Working Group (MSDIWG) and confirmed Mr James Rogers (USA-NGA) as its Chair. The Commission also endorsed Mrs. Bernice Mahabier (Suriname) as the new Chair of the MICC.

MACHC was informed on the work, and its impact, of the IHO Secretariat and bodies, received reports from coastal States and regional organizations, considered ongoing Capacity Building activities and endorsed future plans for the region. Updates from the University of West Indies (UWI) on risk assessment and accident statistics and from the GEBCO Seabed 2030 and International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (IBCCA) were received. The meeting also received updates from Industry on technological and operational developments that were well appreciated.

Participants were invited to consider a regional contribution to the revision of the IHO Resolution 1/2005 *IHO Response to Disasters*, besides their individual inputs. The draft MACHC Response to Disasters Framework was endorsed by the Commission and will be circulated for further comment before consideration by the next meeting.

The Commission received reports from the UN-GGIM Working Group on Marine Geospatial Information (WGMGI) Chair, from the Tri-national Initiative for Marine Science and Conservation in the Gulf of Mexico and Western Caribbean and from the Caribbean Marine Atlas (CMA). Industry participants provided insightful contribution related to SDI and data management.

The meeting was informed on the progress done by the MICC and of the significant progress in ENC coverage in the region reaching 914 ENCs, from 820 available in 2017. The region was able to cover 14 of the 43 large scale ENC gaps identified by Cruise Ship Ports Gap Analysis in 2015 and work is in progress to address the remainder. Worth noting that the MACHC did not identify any overlaps posing risk to the safety of navigation in the region. There is progress in the INT Chart production with 49 produced and a further 33 schemed. The Plenary endorsed the work and the reports of the MICC, of the CBC and of the MSDIWG.





*Captain Sandoval García (Dominican Republic) signs the Statutes of the MACHC as a full Member in the presence of the Chair, Rear Admiral Enrique Flores Morado (Mexico)*

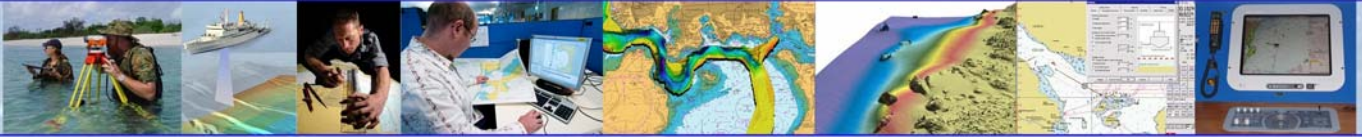
During the meeting, Dominican Republic signed the Statutes of the MACHC as a full Member following its reinstatement to the IHO in January 2018. The meeting also noted with satisfaction that the last NAVAREA IV-XII Coordinator Report indicated that Dominican Republic started to send MSI messages, contributing to the safety of navigation in the region.

The MACHC elected Ms Kathryn Ries (USA/NOAA) and Vice Admiral Antonio Fernando Garcez Faria (Brazil) as its Chair and Vice-Chair.

### **Distinguished Service Medal of Colombian Maritime Authority**

During the MACHC-19 meeting, Vice Admiral Soltau, Hydrographer of Colombia and General Maritime Director (DIMAR), presented the Distinguished Service Medal of the Colombian Maritime Authority to IHO Director Mustafa Iptes and to Assistant Director Alberto Costa Neves at a special ceremony. The medals were presented as recognition for the continued support to hydrography in Colombia for the benefit of the national maritime development.





*IHO Director Mustafa Iptes and Assistant Director Alberto Costa Neves  
at the Ceremony of Presentation of the Distinguished Service Medal of Colombian Maritime Authority*

## **Next Meeting**

Next MACHC meeting will be held in Santo Domingo, Dominican Republic, in November/December 2019, preceded by a two-day CB Seminar on Hydrographic Governance.





**2<sup>ND</sup> MEETING OF THE IHO HYDROGRAPHIC DICTIONARY  
WORKING GROUP (HDWG2)**

**IHO Secretariat, Monaco, 27-28 November**

Contribution to the IHO Work Programme 2018	
Task 2.8.2	Maintain S-32- Hydrographic Dictionary

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 2<sup>nd</sup> meeting (HDWG2) at the IHO Secretariat, Monaco, from 27 to 28 November under the chairmanship of Mr Jean Laporte (France). Five representatives from five Member States (China, France, Indonesia, Oman and United States), and the IHO Secretariat attended the meeting. Director Abri Kampfer, Assistant Directors David Wyatt and Anthony Pharaoh, the Technical Standards Support Officer, Jeff Wootton, and the Peruvian Project Officer, Atilio Aste, represented the IHO Secretariat.

The participants devoted significant time 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, who also described the inter-relationship between the IHO GI Registry and the Hydrographic Dictionary database. It was agreed that the database development should be designed to allow the inclusion of multiple language versions by Member States. The respective term and definition entries will individually refer to the IHO maintained reference version to achieve a fully multilingual searchable dictionary. The multitude of these language terms referring to the IHO reference version will be maintained by means of a language neutral individual numeric identifier. It was agreed that the proposed database application should replace the current Wiki version, which will be withdrawn as soon the new arrangement becomes publicly accessible. The participants received presentations on challenges of creating multiple language versions, particularly those languages which use non-Roman script characters, such as Chinese and Arabic.



*Participants of the 2<sup>nd</sup> meeting of the HDWG in Monaco*





It was also agreed that the comprehensive review of the complete set of terms currently contained in S-32 is planned to be undertaken in early 2019 with those terms identified for removal being subsequently considered by the full HDWG as part of the ongoing maintenance of the reference database. The revised approach will be presented at HSSC11 in Cape Town, South Africa, (6-9 May 2019) and subsequently at IRCC11 in Genoa, Italy, (3 - 5 June 2019) to explain the functionality and maintenance, the opportunity for the development of additional language versions by Member States and its important relationship to the IHO GI Registry. It was agreed to use the forthcoming meetings of the Regional Hydrographic Commissions to engage with Member States and encourage their involvement in the creation and maintenance of their own language versions.

It was agreed that a further meeting of the Working Group would be beneficial in due course. A need for the participation of additional experts nominated by Member States was identified, once the new database structure had been developed, when the experience base of the WG would need broader hydrographic and cartographic knowledge in order to undertake the task of reviewing and maintaining the terms and definitions in the database. It was noted that a review of the Terms of Reference and Business Rules should be undertaken to reflect this development.



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 in due course. ([https://www.iho.int/mtg\\_docs/com\\_wg/CHD/HDWG2/HDWG2.htm](https://www.iho.int/mtg_docs/com_wg/CHD/HDWG2/HDWG2.htm))





## 9<sup>TH</sup> MEETING OF THE IHO-EU NETWORK WORKING GROUP AND EUROPEAN OCEAN OBSERVING SYSTEM (EOOS) CONFERENCE

Brussels, Belgium, 20 – 23 November

Contribution to the IHO Work Programme 2018	
Task 1.1.4 Participation in the 9 <sup>th</sup> IENWG Meeting	 

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 9<sup>th</sup> meeting (IENWG-9) in a plenary session in Brussels, Belgium, from 20 to 21 November, at the DG-Agri<sup>1</sup> of the European Commission, hosted by DG-Mare<sup>2</sup>. Delegates representing DG-Mare<sup>2</sup>, EuroGOOS<sup>3</sup> and EMODnet<sup>4</sup> were present. The IENWG-9 meeting was followed by the 2018 EOOS Conference<sup>5</sup>, from 21 to 23 November – *Connecting Communities for End-to-End Solutions*, hosted at the Egg, in Brussels.

The IENWG-9 meeting was chaired by Laurent Louvart (France) and supported by Corine Lochet (France) as Executive Secretary of the IENWG. Twenty-two delegates including National Hydrographers, from 13 Member States (Belgium, Croatia, Denmark, France, Germany, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Romania and Sweden) attended the meeting. Assistant Director Yves Guillam represented the IHO Secretariat.

The main objectives of the IENWG-9 meeting were:

- to review the EOOS strategy and its draft implementation plan in order to examine how the Hydrographic Services of the IHO Member States can contribute and get benefits and visibility in return;
- to compare the different methodologies and web services used by the coastal States to make available and portray their official baseline and coastline data;
- to take the opportunity of the overhaul of the IHO communication plans and means (including social medias) in order to develop the visibility of the objectives and achievements of the IENWG, at least at the European level;

<sup>1</sup> Directorate-General – Agriculture.

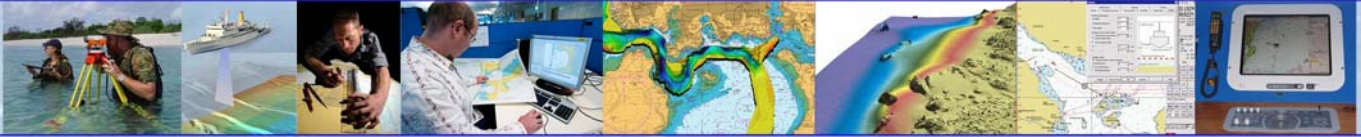
<sup>2</sup> Directorate-General – Maritime Affairs and Fisheries.

<sup>3</sup> European Global Ocean Observing System.

<sup>4</sup> European Marine Observation and Data Network (<http://www.emodnet.eu>).

<sup>5</sup> [www.eoosconference2018.eu](http://www.eoosconference2018.eu)





- to consider the possible impact on the economic models of Hydrographic Services if the revision of the European Directive on the re-use of public sector information leads to the inclusion of nautical charts (including ENCs) in the list of the so-called “high-value public data for re-use” ...the consequence of which being that these data should be made available for free.

First, the members noted the “call to action” from EOOS, most of the themes being of interest to the IHO community and aligned with the MoU<sup>6</sup> between the IHO and the European Commission. They are, in substance:

*“1. Countries should coordinate all national marine and coastal data collection efforts to improve efficiency, and identify priorities and gaps .... Observations should be standardized and operationalized within and across regional seas, building on the work done via existing regional coordination frameworks;*

*2. ...This requires a concerted effort to ensure that different EU investments in marine and coastal data collection infrastructures are better connected and are linked to existing data management and sharing initiatives; and...*

*3. ... support integration and drive innovation in infrastructure and technology development to reduce the cost and expand the coverage of ocean data collection, ...”*

In support of these objectives, participants agreed to promote the current IHO infrastructure, the activities managed and carried out through the Regional Hydrographic Commissions and the Seabed 2030 Project. They also mentioned the current developments in crowd-sourcing bathymetry. It was agreed that the IENWG should prepare a statement of interest towards EOOS, under the umbrella of the existing IHO-EC MoU.

The participants shared their concerns with regard to the possible evolution of the EU Directive on the re-use of public sector information, trying to identify and harmonizing the arguments that could be put forward, at national levels, to avoid a major destabilisation effect in the economy of ENC (and S-57 data) production, maintenance and distribution for Hydrographic Services whose budget relies substantially on the licencing revenues and sales.

---

<sup>6</sup> Memorandum of Understanding.





The EOOS event was co-organised by the secretariats of the European Marine Observation and Data Network (EMODnet), European Marine Board (EMB) and European Global Ocean Observing System (EuroGOOS). The IHO was mentioned several times, in particular highlighting the added-value provided for several applications, by the bathymetry portal of EMODnet to which several European IHO Member States have contributed. The Conference launched the EOOS Strategy 2018-2022 and its Implementation Plan. The IENWG will now consider the possibility of submitting concrete proposals in line with the IHO work programme.



Four Member States (France, Italy, Netherlands, and Portugal) presented technical posters (7) at the EOOS Exhibition. One of which was a summary of a presentation<sup>7</sup> already given by Ellen Vos (Netherlands Hydrographic Service) at the European Inspire<sup>8</sup> Conference in August 2018, where she was awarded with the Golden Pineapple Inspire Price for her contribution.

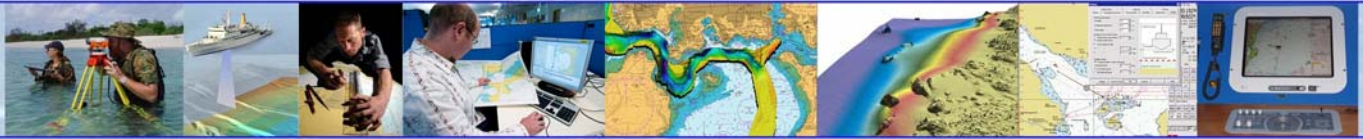


*Participants at the 9<sup>th</sup> IENWG meeting, Brussels, Belgium*

<sup>7</sup> "What geospatial information is needed for managing wind farm projects at sea and how are we going to organise that?" - <https://www.youtube.com/watch?v=hJzMnzEdr2Y&t=589s>

<sup>8</sup> Infrastructure for Spatial Information in Europe.





The closing session of the EOOS, chaired by Vladimir Ryabinin, Executive Secretary of the Intergovernmental Oceanographic Commission (IOC) of UNESCO, highlighted the European contribution to Ocean Observation in the context of International Strategies and developments (the UN Sustainable Development Goals and the Decade of Ocean Science for sustainable development), while the closing remarks were given by Karmenu Vella, European Commissioner for Environment, Maritime Affairs and Fisheries.





## THE 1<sup>ST</sup> WORLD GEOSPATIAL INFORMATION CONGRESS (UNWGIC) Deqing, China, 19 - 21 November

Contribution to the IHO Work Programme 2018	
Task 1.1.12	Maintain relationship with United Nations (UN) organizations based in New York, including:
Task 1.1.12.1	- the UN Committee of Experts on Global Geospatial Information Management (UN-GGIM) And WG on Marine Geospatial Information

The 1<sup>st</sup> World Geospatial Information Congress was convened by the United Nations through the Department of Economic and Social Affairs, with the support of the Government of China through the Ministry of Natural Resources and the Zhejiang Provincial Government from 19 to 21 November 2018 in Deqing, Zhejiang Province, China.



More than 1000 participants, including many Ministers and senior officials from across the world, attended the UNWGIC. Participation at the highest level of 200 governments, international and non-governmental organizations, academia and the private sector within the global geospatial information and technology community, made the Congress a truly global event. With the overarching theme "The Geospatial Way to a Better World", the UNWGIC aimed to provide a participatory and inclusive environment to enhance leadership, knowledge and understanding of the significance and the usefulness of geospatial information management

to address national, regional and global challenges, in service of social, environmental and economic development.

The programme of the UNWGIC was expansive, forward looking and thought-provoking. It contained a high-level Opening Ceremony, a Ministerial Dialogue entitled "Towards a more sustainable World for All", four Plenary Sessions, a comprehensive programme of Parallel Sessions and Special Sessions and a Closing Session to wrap up and issue the Moganshan Declaration.

This Declaration addresses inter alia the challenge to Ministers and other high-level decision-makers to ensure that geospatial information and location enablement are able to recognize and underpin the Sustainable Development Goals (SDGs) of the United Nations at national levels through the Integrated Geospatial Information Framework as a fundamental and enabling methodological framework and infrastructure for creating greater social, economic and





environmental understanding, evidenced based decision making, design and delivery of projects and services, and implementing and achieving the 2030 Agenda for Sustainable Development. Request is put on Member States, institutions, academia, industry and individuals including the United Nations system to explicitly connect geospatial information to national development agendas; and to confirm that all international stakeholders engaged in geospatial data, technologies and innovation will continue to collaborate and engage across professional domains to effectively democratize and transfer these technologies and share data through the enabling global mechanism of the SDGs utilizing the various integrative systems and solutions now available.

Plenary Sessions were dedicated to:

Sharing the Digital Economy;

Attaining Sustainable Development

Building Smart Societies; and

Growing International Cooperation.

There were thirty-five Parallel Sessions developed in five series to examine the seven themes on:

- 1) Measuring and Monitoring the SDGs;
- 2) Digital Economy. Location Analytics and Big Data;
- 3) Smart, Resilient and Sustainable Societies;
- 4) Growing Global Geospatial Capability and Capacity,
- 5) Geospatial Innovation, Science and Technology;
- 6) Digital Silk Road and International Partners and
- 7) Sustainable Development in Action.



The IHO was represented by Secretary-General, Dr Mathias Jonas, who introduced IHO's Crowd Source Bathymetry Initiative in Parallel Session Number 5. A particular highlight of his presentation was the IHO's Data Centre for Digital Bathymetry (DCDB) Data Viewer where bathymetric observations and measurements from participants in citizen science and crowdsourced programs are archived and made available to the public. The principles of the DCDB are very responsive to the ongoing arguments for a global open data policy to bring geospatial information into the greatest effect "to arrive at a better world" – less pollution, more sustainability and faster recovery of polluted and exhausted areas. In this context Australia presented the "Datacube"-concept which adds the timely component to thematic geoinformation layers. The concept is currently applied in numerous African States to trace the timely development of water resources more efficient, transparent and effective. The IHO Secretary-General proposed to adopt this principle to bathymetric information to present the timely change of seabed topography through sediment transportation and other dynamic processes of





the water column, such as temperature and salinity, in a manner that validation and forecast could be undertaken in a more effective and globally standardized manner. This proposal was positively received by the audience.

The next Conference is planned for 2021 at the same place, since Deqing claims to be purposely built as “the City for Geospatial Science and Development”.





## IHO-IOC GEBCO (GENERAL BATHYMETRIC CHART OF THE OCEANS) PROJECT ANNUAL MEETINGS Canberra, Australia, 12 – 16 November

Contribution to the IHO Work Programme 2018

Task 3.6.1	Attendance of GEBCO Guiding Committee (GGC) and associated bodies including TSCOM, SCRUM and GEBCO symposium
------------	--

A series of meetings related to the IHO-IOC GEBCO (General Bathymetric Chart of the Oceans)



project were hosted by Geoscience Australia and Land Information New Zealand (LINZ) in Canberra, Australia, from 12 to 16 November 2018:



- 12 and 13 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);
- 14 November: GEBCO Symposium; and
- 15 and 16 November: 35<sup>th</sup> Meeting of the GEBCO Guiding Committee (GGC).

The IHO Secretariat was represented at the joint TSCOM, SCRUM and OWG meeting by Assistant Director David Wyatt who was 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.

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), International Bathymetric Chart of the Southern Ocean (IBCSO), Canadian Hydrographic Service (CHS) activities, European Marine Observation and Data Network (EMODnet) Bathymetry Digital Terrain Model (DTM) 09/2018 developments, Istituto Idrografico Della Marina (IIM) of Italy in the Arctic region and contributions to the





GEBCO and Seabed 2030 projects and the Open Geospatial Consortium (OGC) and its relevance to GEBCO and Seabed 2030 project.



*TSCOM, SCRUM and OWG in plenary session*

Reports were received from the Seabed 2030 Regional Data Assembly and Co-ordination Centres (RDACC) and the Global Data Assembly and Co-ordination Centres (GDACC). A comprehensive brief were provided on the developments in the IHO Data Centre for Digital Bathymetry (DCDB) and future proposed enhancements. Details were also provided on the Crowdsourced Bathymetry (CSB) initiative and the collaboration with Rosepoint Navigation to gather position and depth data via ECS from small vessels. The work to enhance the data collected via the Voluntary Observing Ships (VOS) programme to include bathymetry was highlighted.

Professor Hyo Hyun Sung, Chair of the OWG, presented a detailed update on activities, the proposed GEBCO outreach and capacity building strategies and suggested a way forward in consideration of the decision at GGC34 to create a new Sub-Committee out of the existing Outreach Working Group (OWG) with responsibility for Outreach, Communications and Engagement, to be called the Sub-Committee on Communications, Outreach, Public Engagement (SCOPE).

Thierry Schmitt (France) and Caitlyn Raines (ESRI) were elected as Chair and Vice-Chair of TSCOM respectively for the period 2019 to 2022.

## GEBCO Symposium



*James Johnson, Chief Executive officer, Geoscience Australia, opening of the GEBCO Symposium*

For the eleventh consecutive year, the GEBCO project organized a symposium on the theme of 'Map the Gaps'. The symposium was opened by James Johnson, Chief Executive Officer, Geoscience Australia. The symposium, which included digital poster sessions and contributions from a broad spectrum of institutions involved in all aspects of ocean mapping, featured 25 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/](https://www.gebco.net/about_us/gebco_symposium/)).





## GEBCO Guiding Committee

All of the IHO appointed representatives on the GEBCO Guiding Committee were present. Representatives of Australia, Bangladesh, Canada, Chile, China, Ecuador, Egypt, France, Germany, India, Italy, Japan, Latvia, New Zealand, Poland, Republic of Korea, United Kingdom, USA, Venezuela, IOC, IHO as well as representatives from various Federal and Commonwealth government departments and academic institutions attended the meeting as observers with a number of industry stakeholders attending as expert contributors.



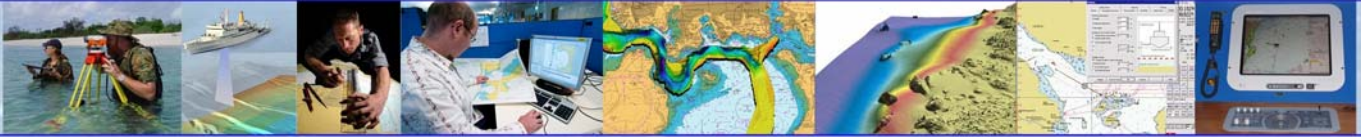
*GEBCO Guiding Committee members at GGC35*

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) reported on the changes of membership and the election of a new Chair (Hyun-Chul Han) and Vice-Chair (Yasuhiko Ohara). He noted that there remained one IOC vacancy to be filled. He highlighted some changes proposed to B-6 (*Standardization of undersea features names*) to make the supporting bathymetric data available to the IHO DCDB as part of a submission. The GGC endorsed an amendment to the ToRs article 2.8 of the SCUFN to increase the submission deadline from 30 days to 60 days for all formats of submissions. He reported on the activities of the Undersea Feature Names Project Team (UFNPT) and the proposed future activities related to the development of a S-100 based Product Specification and the registration of terms in the IHO GI Registry.

The GGC considered 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. The GGC approved the creation of the new Sub-Committee on Communications, Outreach and Public Engagement (SCOPE) and directed the Chair of the OWG to develop appropriate ToRs. In addition, the GGC requested the Chairs of all Sub-Committees to review their ToRs with a view to achieve better harmonization and consistency. The GGC also requested the Chair OWG to generate a draft communications





strategy for consideration at GGC36. The GGC devoted considerable time to discussions on the Seabed 2030 Project. The interim Seabed 2030 Project Director provided a comprehensive presentation on the establishment and activities of the Seabed 2030 Project Team and the regional centers. He highlighted the key personnel involved in the Project Team and the Sponsors. He also presented the initial goals and work packages included in the initial establishment documentation and the overall goal of the project being to complete the GEBCO Grid started in 1903. The GGC reviewed the Year 1 Seabed 2030 Project report and the proposed Year 2 Project Work Plan and both were endorsed after inclusion of a number of amendments and recommendations.

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 15,000€ was maintained for 2019 to cover emergent items. The draft consolidated GEBCO Work Plan and budget will be reported to the 11<sup>th</sup> meeting of the IHO Inter-Regional Coordination Committee (IRCC) and the 30<sup>th</sup> meeting of the IOC Assembly, for consideration and endorsement of the parent organizations.

The GGC reviewed the state of membership and it was noted that one IHO appointed vacancy needs to be filled. The GGC elected Shin Tani (Japan) and Martin Jakobsson (Sweden) as Chair and vice-Chair respectively for the period 2019-2021.

All meeting documents and reports will be available from the IHO website (IHO → Committees and Working Groups → IRCC → GEBCO).

The next GEBCO annual meetings are tentatively planned to take place in November 2019 in Durham, New Hampshire, USA. It was noted that France (Shom) and the IOC were investigating hosting the annual meeting in 2020.





## 47<sup>TH</sup> MEETING OF THE INTERNATIONAL ORGANIZATION FOR STANDARDIZATION – TECHNICAL COMMITTEE 211 (ISO/TC 211)

Wuhan, China, 12 to 16 November

Contribution to the IHO Work Programme 2018	
Task 1.1.10	Attendance of the ISO/TC211 Meeting

The 47<sup>th</sup> meeting of the International Organization for Standardization (ISO) - Technical Committee 211 (ISO/TC211) meeting was hosted by Standardization Administration of China (SAC) and Ministry of Natural Resources of the People's Republic of China (MNR). The National Geomatics Centre of China and the Wuhan University provided organizational and logistics support for the meeting, which took place in Wuhan, China from 12 to 16 November 2018.

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 19100 series of standards and specifications produced by ISO/TC211 have been used for the development of the IHO S-100 Universal Hydrographic Data Model and dependant Product Specifications. Assistant Director Anthony Pharaoh represented the IHO Secretariat at the 47<sup>th</sup> ISO/TC211 Working Group and Plenary meetings.



*Participants of the 47<sup>th</sup> ISO/TC211 Plenary Meeting*





The meeting approved Eswatini (Swaziland) as a new “Participating” (P) member. There are currently 37 Participating members and 32 Observing members. The TC211 has published 80 standards and has 27 standards currently under development. Representatives from the IHO, Open Geospatial Consortium (OGC) and Defence Geospatial Information Working Group (DGIWG) provided reports on the standards developing activities within their respective organizations. The meeting approved a proposal to establish an internal liaison with ISO/IEC JTC 1/SC 42 on “Artificial Intelligence”. The TC currently has 35 external and 25 internal participating liaison organizations.

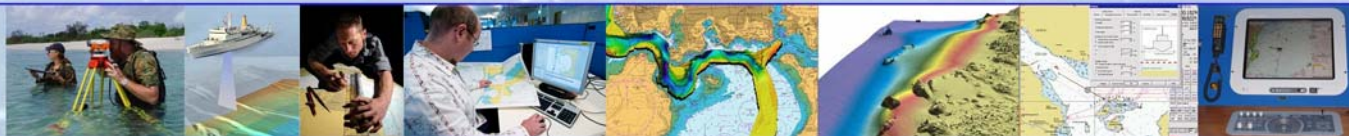
ISO requires in principle that all standards undergo regular revisions to ensure they remain fit for purpose. The plenary meeting agreed that the following standards should now undergo systematic review; 19157:2013 – Data quality, 19135-2:2012 - Procedures for item registration (Part 2: XML schema implementation), 19129:2009 - Imagery, gridded and coverage data framework, 19163-1:2016 - Content components and encoding rules for imagery and gridded data (Part 1: Content model), 19153:2014, Geospatial Digital Rights Management Reference Model (GeoDRM RM) and 19115-1:2014 - Metadata (Part 1: Fundamentals). ISO/TC211 maintains a repository of UML models, XML Schemas and ontology representations of most of its standards. These are available from the TC211 Git<sup>9</sup> repository (at <https://github.com/ISO-TC211>). The repository also includes best practice guidance on the use of UML<sup>10</sup> for the suite of 19100 standards. A new standard (19170) on discrete global grid systems with relevance for IHO standardisation activities was confirmed as a “Draft International Standard” and will be circulated for review. Another future important online resource provided by the TC includes the Registry of geodetic codes, which will be made available via the TC211 website, when completed.

The meeting was chaired by Mr Olaf Ostensen (Norway) as the current Chairman Ms Christina Wasström was regrettably unable to attend the meeting. The 48<sup>th</sup> working group and plenary meeting is scheduled to take place from 3 to 7 June 2019, in Slovenia.

<sup>9</sup> A digital directory or storage space that can be used to store and access multiple versions of project files.

<sup>10</sup> Universal Modelling Language





**4<sup>TH</sup> MEETING OF THE NAUTICAL CARTOGRAPHY  
WORKING GROUP (NCWG)**

**Scheveningen, The Hague, Netherlands, 6 – 9 November**

<b>Contribution to the IHO Work Programme 2018</b>		
Task 2.1.2.4	Organize, prepare and report meetings of NCWG	

Hosted by the Hydrographic Service of the Royal Netherlands Navy, the fourth meeting of the Nautical Cartography Working Group (NCWG) took place in Scheveningen, The Hague, Netherlands, from 6 to 9 November. The meeting was chaired by Mr Mikko Hovi (Finland), supported by Mr James Timmins, Secretary (United Kingdom). Thirty-two delegates from 19 Member States (Brazil, Colombia, Denmark, Estonia, Finland, France, Germany, India, Indonesia, Italy, Japan, Netherlands, Norway, Republic of Korea, Spain, Sweden, Turkey, United Kingdom, USA), two Expert Contributors (Esri, Fugro/ICPC<sup>11</sup>), and the IHO Secretariat, represented by Director Abri Kampfer and Assistant Director Yves Guillam, attended the meeting. The Chair of the Data Quality Working Group (Netherlands) was also present during the entire meeting and provided enlightening inputs in relation to doubtful features, accuracy, CATZOC, data quality portrayal, etc.



*NCWG-4 participants gathered outside the Badhotel meeting room*

Following a motivating welcome address by Captain (RNLN) Marc van der Donck, Hydrographer of the Royal Netherlands Navy, the Nautical Cartography Working Group (NCWG) considered all

<sup>11</sup> International Cable Protection Committee





the actions from the last meeting and those arising from the 9<sup>th</sup> and 10<sup>th</sup> meeting of the Hydrographic Services and Standards Committee (HSSC) that related to charting.

The Chair (US) of the Sub-Working Group on the Future of the Paper Chart provided a progress report on the status of this high priority work item of the NCWG work plan and suggested the draft topics that should be considered for an impact study by various stakeholders through a survey to be conducted in 2019. The various tasks to continue the work were allocated to some NCWG Members and the management plan was approved. A preliminary report is planned to be presented at HSSC-11, in May 2019. Several IHO strategic related issues were discussed, such as the future of the INT chart concept itself.

The representative of the ICPC submitted proposals for amendments to the sections of S-4 - *Regulations for International (INT) Charts and Chart Specifications of the IHO* - dealing with submarine cables, aiming to align with the IHO Resolution 4/1967 as amended and eventually to chart cables in possible deep sea mining areas.

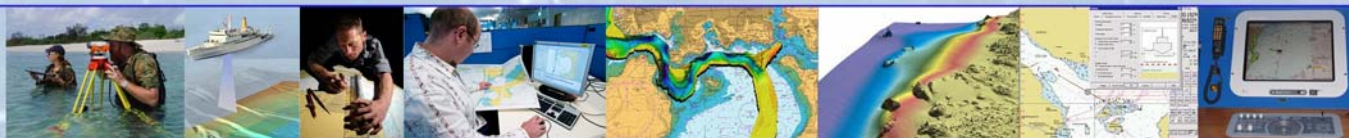
Around 15 cartographic issues and proposals were considered by the NCWG, including the possible need to harmonize or standardize the portrayal of satellite derived bathymetry and the associated quality indicators. It is worth noting that since the last NCWG meeting, the submission template used for change proposals on symbology or chart regulations requires a short mandatory analysis of the possible impact of the proposed change on ENC's.

Germany introduced the latest Edition 9 of INT-1 - *Symbols, Abbreviations and Terms used on Charts* – which is now available on the IHO website for download by IHO Member States. An action was initiated to consider future alternative options in the maintenance and production of INT-1. UK introduced the new section V on Data Quality Indicators that is now included in the August 2018 edition of its national publication NP5011 - *Symbols and Abbreviations used on Admiralty Charts*.

The IHO Secretariat provided an update on the developments in progress with regard to the Phase II of the INTOGIS project, aiming to facilitate the implementation of INT paper chart and ENC schemes in the charting regions, in accordance with guidance given in Publication S-11 Edition 3.1.0, February 2018 - *Guidance for the Preparation and Maintenance of International (INT) Chart and ENC Schemes and Catalogue of International (INT) Charts*. In support of this topic, the meeting welcomed a presentation provided by a representative of Colombia, engaged in a doctoral level study entitled "*Methodological Proposal to Standardize Regional ENC Schemes – Case Study: Caribbean Sea*". This study is planned to be introduced at the 19<sup>th</sup> meeting of the MACHC and its progress could further be monitored by the WENDWG.

The working group also considered four marine nautical incidents (groundings) by examining the official investigation reports to identify whether lessons learned had to be captured for cartographic improvements. Although it was agreed that these incidents were not due to shortcomings in cartographic concepts, participants acknowledged that these cases were





noteworthy to be considered by the NCWG as they help to understand how the nautical publications, charts (ENCs and Paper) and quality indicators are used for setting alarm thresholds, either for route planning or during navigation.

Compared to the previous meetings, this meeting was particularly notable for a major reason: while addressing the cartographic issues, it revealed that a number of Hydrographic Offices are now facing new cartographic challenges resulting from the dual and simultaneous production of ENCs and paper charts from a single chart content database. Therefore, sharing the best practices within the NCWG to avoid inconsistencies in chart production and maintenance is becoming even more important for the future.

At the end of the meeting, the working group welcomed the offer by Sweden to host the 5<sup>th</sup> meeting of the NCWG in Stockholm in November 2019.





## FIG/IHO/ICA INTERNATIONAL BOARD ON STANDARDS OF COMPETENCE FOR HYDROGRAPHIC SURVEYORS AND NAUTICAL CARTOGRAPHERS (IBSC) AD HOC MEETING

5 - 9 November 2019, Singapore

### Contribution to the IHO Work Programme 2018

Task 3.8.4	Review the IBSC standards and maintain IBSC Publications, including C-6, C-47, S-5A/B and S-8A/B. Monitor, control and update of the IBSC Standards in S-5A/B and S-8A/B. Provide guidance to training institutions.
------------	--

The FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) held an ad hoc meeting in Singapore from 5 to 9 November, hosted by the Maritime and Port Authority of Singapore. The meeting was chaired by Mr Adam Greenland (New Zealand) and attended by seven of its Members. The IHO Secretariat was represented by Assistant Director Alberto Costa Neves (IBSC Secretary).



*IBSC Members with the Hydrographer of Singapore, Dr Parry Oei*

The IBSC is responsible for reviewing the recommended standards of competence for hydrographic surveyors and nautical cartographers, to maintain and promulgate all publications and documents resulting from the tasks carried out by the Board and review the syllabi of programmes submitted by hydrographic offices, institutions and learned bodies. It also provides advice and comments on such syllabi by comparison with the recommended minimum





standards, awards certificates of programme recognition where appropriate and reviews the procedures for submitting programmes for recognition.

The outcome of IRCC10 and ways of strengthening the engagement with stakeholders were considered. The Board confirmed the "right first time" concept and started the development of frequently asked questions, a checklist for the Secretary to validate the submission for completeness and compliance, and a template for the letter of invitation for submissions providing the initial guidance for institutions. The Board also established a lifecycle and timeline for submissions with the relevant templates and information workflow to help institutions to get it "right first time".

During the meeting, the Board reviewed the Guidelines for the Implementation of the Standards of Competence for Hydrographic Surveyors and Nautical Cartographers, a draft that will be considered at the next meeting (IBSC42). The Board considered mechanisms and resources for the update of C-6 and C-47. Actions for communication and branding were considered during the meeting, including the publication of a flyer, preparation of a banner, participation in relevant events, preparation of articles and the use of social media. The meeting also progressed with the design of a geographical layer displaying all the IBSC Recognized Programmes.

Requests and communications from institutions holding recognized programmes were also considered by the Board. The meeting agreed on its participation in a Stakeholders' Seminar that will be held in Genoa, Italy, on 27 and 28 May 2019, including the potential content and presenters, representatives from Academia, Government and Industry, and focusing on the "right first time" principle and the experiences gained implementing the new standards framework.

The meeting finalized the intersessional review of programmes that were given conditional recognition at IBSC41. Letters informing the submitting organizations were prepared during the meeting. The 2018 review process paired the 2016 number of 13 programmes recognized, from which six are new programmes.

The next meeting of the Board (IBSC42) will be held in Honolulu (HI), USA, from 25 March to 5 April 2019, hosted by the NOAA/University of New Hampshire Joint Hydrographic Center at the facilities of the University of Hawaii.