

5TH MEETING OF THE ARCTIC REGIONAL HYDROGRAPHIC COMMISSION Saint Petersburg, Russian Federation, 28 - 30 October



The 5th Meeting of the Arctic Regional Hydrographic Commission (ARHC) was held in Saint Petersburg, Russian Federation from 28 to 30 October. Four of the five Member States, Denmark, Norway, Russian Federation and the USA were represented, together with representatives of Finland and Iceland attending as observers. Canada was unable to attend the meeting. President Robert Ward represented the IHB. The meeting was chaired by Captain Leonid Shalnov on behalf of the Hydrographer of the Russian Federation, Captain Sergey Travin.

The meeting agenda covered the further development of a strategic directions document for the ARHC as well as initiatives to raise awareness of the shortcomings of hydrography and charting in the region so as to gain greater levels of national and regional support. Participants exchanged views on best practices and new technologies for surveying in the Arctic. Discussion also centred on providing relevant input to the Arctic Council working

group on the Protection of the Arctic Marine Environment (PAME).



Evert Flier, Director of the Norwegian Hydrographic Service, delivers his national report

Reports were presented from each Member State covering the status of hydrography, progress made and the charting priorities. This prompted a number of informal and fruitful technical discussions between the delegates during the intervals between sessions of the meeting.

The representatives discussed how the Member States of the Commission might contribute to improving the evolving Marine Spatial Data Infrastructure (MSDI) for the Arctic region.



Cartographers from the Russian Federation and the USA discuss the harmonization of their trans-boundary chart coverage

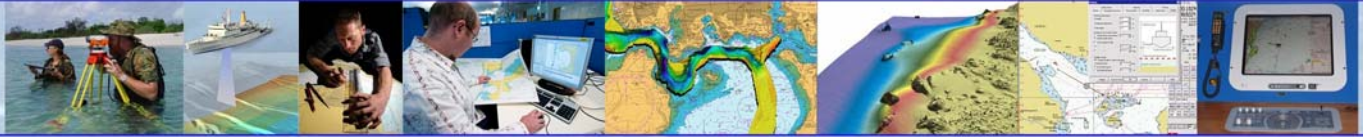
Chart coverage issues that were discussed included the IHO INT chart scheme and better harmonization of ENC chart compilation - especially in relation to compilation scales and the allocation of navigation purpose codes.

The Members at the meeting agreed to invite Finland to apply for associate membership of the Commission. They also agreed to work interessionally to develop protocols for the selection process for representatives on the IHO

Council when it is formed as part of the revised terms of the Convention on the IHO.

In accordance with the established policy of rotation, Canada was elevated from the position of vice-chair to take over the chair at the end of the meeting. Denmark was elected to occupy the resultant vacant vice-chair position.

The meeting noted Canada's offer to host the next meeting in October 2016 and invited Canada to provide specific dates and details of the venue in due course.



3RD MEETING OF THE ATLANTIC SEABED MAPPING INTERNATIONAL WORKING GROUP (ASMIWG) AND OCEAN INNOVATION 2015 CONFERENCE St John's, Newfoundland, Canada, 27-29 October

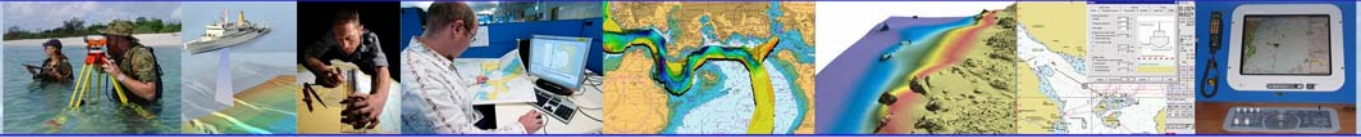
The *Galway Statement* was an outcome of the Conference on “*The Atlantic – A Shared Resource*” held in Galway, Ireland, from 23 to 24 May 2013, where representatives of the European Union (EU), the United States of America (USA) and Canada agreed to join forces on Atlantic Ocean Research. The goal is to better understand the Atlantic Ocean and promote the sustainable management of its resources. The *Galway Statement* aims to connect the ocean observation efforts of the three partners. The work will also study the interplay of the Atlantic Ocean with the Arctic Ocean, particularly in relation to climate change. The actual sea area covered by the *Statement* is not precisely defined.

The 3rd Meeting of the Atlantic Seabed Mapping International Working Group (ASMIWG) on the Implementation of the *Galway Statement* was held in St John's, Newfoundland, Canada, on 29 October 2015. The meeting was chaired by Mr Alan Stevenson, British Geological Survey (BGS)/EuroGeoSurvey Marine Geology Expert Group (EGS MGEG) 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 meeting of the ASMIWG was preceded by a meeting of the Canada-EU-US *Galway Implementation Committee* and the *Ocean Innovation 2015 Conference*, under the title: *Mapping our Oceans*. All the events were hosted by the Fisheries and Marine Institute of Memorial University in St John's. Participants were welcomed to the Conference by Mr Glenn Blackwood, Vice-President of the Institute. The opening keynote address was delivered by Mr Denis Hains, Hydrographer-General of Canada and Director General, Canadian Hydrographic Service (CHS).



Assistant Director Wyatt presenting at Ocean Innovation 2015



The 70 Conference delegates heard speakers from Canada, Ireland, USA and EU deliver presentations covering a broad spectrum of topics including seabed mapping projects in Ireland and Canada, geological interpretation of bathymetric and backscatter data, data discovery and sharing, benthic habitat mapping, developments in interferometric synthetic aperture sonars and details of the Canadian 2014 Franklin Expedition. Professor Larry Mayer, Director of the Center for Coastal and Ocean Mapping, and Co-Director of the Joint Hydrographic Center, University of New Hampshire, USA, gave a presentation which looked at potential future developments in equipment and techniques and how these could change the way ocean mapping was conducted in the future. Assistant Director David Wyatt gave a presentation on Crowd-Sourced Bathymetry and Open Access Bathymetric Data.

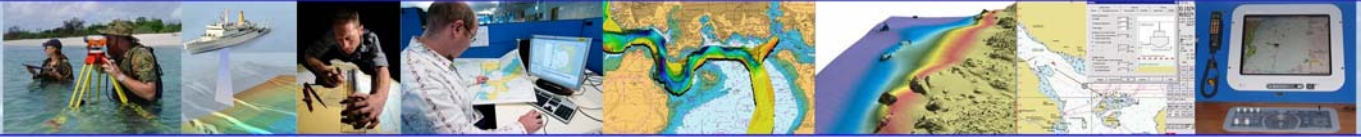


Atlantic Seabed Mapping International Working Group Meeting

The ASMIWG reviewed the progress since its previous meeting in Cork and the direction and guidance provided from the Canada-EU-US Galway Implementation Committee meeting. The meeting received information on recent North Atlantic transects undertaken in *Celtic Explorer*, a research vessel operated by the Marine Institute of Ireland (INFOMAR), and by the Canadian Coast Guard vessels *Louis S. St-Laurent*

and *Terry Fox* en route to the Arctic. Ms Jennifer Jencks, from the NOAA/National Centers for Environmental Information, provided a progress report on the improvements to the IHO Data Center for Digital Bathymetry (DCDB), in which she highlighted the efforts at improving the interoperability and harmonization with other data stores as well as initiatives for improved information sharing. The potential to utilize current and past students of the GEBCO-Nippon Foundation Ocean Mapping training programme and those from the University of Stockholm for multibeam system operations during transects were highlighted.

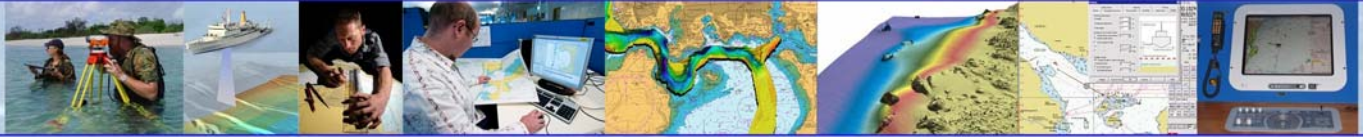
Taking into account the outcomes of the Canada-EU-US Implementation Committee meeting and its directive to the ASMIWG to generate recommendations and outline plans for consideration, there was considerable discussion on the ideal attributes for a pilot project area. It was agreed that draft recommendations should be completed by the end of 2015 and presented to the Implementation Committee by February 2016 to allow platform bids to be made for the 2017 season.



The ASMIWG reviewed its draft Terms of Reference and Rules of Procedure, which will be presented to the next meeting of the Implementation Committee for endorsement. It was also agreed a web page should be developed on the Atlantic Ocean Research Alliance site (<http://www.atlanticresource.org>) for the use of ASMIWG members, particularly for past and future meeting documents. The Implementation Committee confirmed the next meeting of the ASMIWG would take place in New Orleans, USA, at the start of the Ocean Sciences Conference which will be held from 21 to 26 February 2016, with a further meeting at the GeoHab Conference in Winchester, UK, in May 2016. It is intended that the meeting report and all papers will be available from the EC web site at

<http://ec.europa.eu/research/iscp/index.cfm?lg=en&pg=transatlantic-alliance> and from

<http://www.atlanticresources.org>.



8TH CONFERENCE AND 22ND BUSINESS MEETING OF THE ADVISORY BOARD ON THE TECHNICAL ASPECTS OF THE LAW OF THE SEA

Monaco, 19-22 October

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 (UN-DOALOS) and the secretariat of the IHO (IHB) provide one ex-officio member each. The 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. The 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.



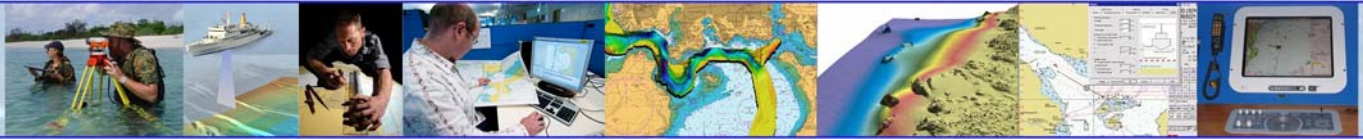
ABLOS Members gathered for ABLOS BM22 in Monaco

22ND Business Meeting of ABLOS

The 22nd Business Meeting of ABLOS was held at the International Hydrographic Bureau in Monaco on 19 and 22 October 2015. The 8th ABLOS Conference, titled '*UNCLOS: Advances in Managing the Blue World*' took place 20-22 October 2015 and was held at the Novotel, Monaco.

All ABLOS Members and Observers from Australia, Brazil, Canada, Chile, Denmark, India, Indonesia, Japan, Republic of Korea and the United Kingdom were present; a representative from Suriname also attended both events. The Chair, Professor Sunil Bisnath (IAG – Canada), welcomed all Board Members and Observers to the business meeting.

The first session of the Business Meeting completed final preparations for the 8th ABLOS Conference. 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 2016 for consideration by the 8th Meeting of the Hydrographic Standards and Services Committee. Japan agreed to provide the revised Chapter 3 text for review by the Editorial Board.

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.

The meeting reviewed the Terms of Reference and Rules of Procedure for the ABLOS, noting there was no requirement for amendments at present. They agreed that the future of ABLOS and its work should be considered by all Members before the next Business Meeting. It was noted that the Terms of Reference should be used as the basis for a review of the tasks set and the work undertaken. Participants were asked to consider whether some tasks had been completed and whether there were any activities which were not addressed in the Terms of Reference. The status of current Board Members was reviewed. Dr Niels Andersen, IAG representative due to complete his term in January 2016, expressed a desire to serve for a further 4 years. Dr Sobar Sutisna (IAG representative) indicated that he would be standing down in 2017 and Professor Sunil Bisnath (IAG representative) would complete his second term in 2017. The Board unanimously supported the reappointment of Dr Andersen and Professor Bisnath. The Chair was directed to request the IAG Executive to consider reappointing Dr Andersen and Professor Bisnath and to identify a suitable replacement for Dr Sutisna. In addition the ABLOS requested the Chair to investigate with the IAG Executive the appointment of an IAG Observer to ABLOS for the development of potential future IAG Members to ABLOS.

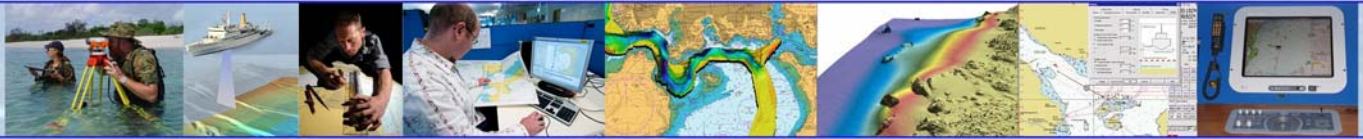
On completion of the ABLOS Conference, Mr John Brown (UK) assumed the role of Chair and Dr Niels Andersen (Denmark) was elected as Vice-Chair. It was agreed that the next Business Meeting would take place in Seoul, Republic of Korea, 26-28 October 2016 and the next ABLOS Conference would take place in Monaco on 10 and 11 October 2017.

8th ABLOS Conference



Director Gilles Bessero addressing the 8th ABLOS Conference

The 8th ABLOS Conference was attended by approximately 60 delegates. 25 IHO Member States were represented, namely Algeria, Australia, Brazil, Canada, Chile, Denmark, France, Germany, Greece, India, Indonesia, Japan, Monaco, Netherlands, New Zealand, Nigeria, Norway, Oman, Portugal, Republic of Korea, Singapore, Suriname, Thailand, United Kingdom and USA. The Conference included 28 presentations covering a wide variety of topics and issues in relation with the theme “*UNCLOS: Advances in Governing the Blue*



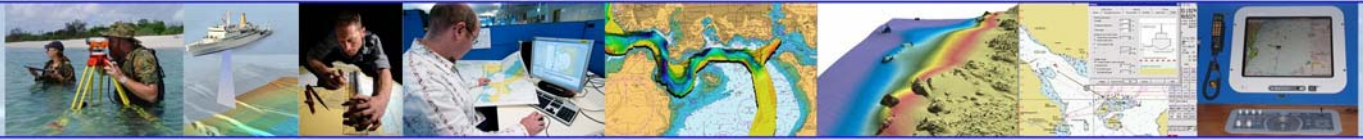
World". President Robert Ward welcomed the delegates on behalf of the IHO. The opening key note address was given by Rear Admiral Nick Lambert, former National Hydrographer of the United Kingdom, and the closing presentation was given by Professor David Freestone, The George Washington University, USA. Overviews of the IHO and IAG contributions to the implementation of UNCLOS were provided by Director Gilles Bessero and Professor Sunil Bisnath respectively. 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.

Date of Next Meetings

The 9th ABLOS Conference will be held in Monaco and is planned for the period 10-11 October 2017; 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).



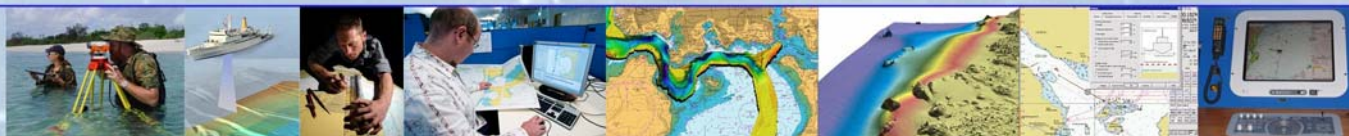
PLENARY MEETING OF THE TECHNICAL COMMITTEE 80 OF THE INTERNATIONAL ELECTROTECHNICAL COMMISSION Busan, Republic of Korea, 19-20 October

The International Electrotechnical Commission (IEC) is an international non-governmental organization that publishes consensus-based international standards and manages conformity assessment systems for electric and electronic products, systems and services. Its Technical Committee 80 (TC80) is responsible for maritime navigation and radiocommunication equipment and systems and produces the testing standards required to implement the performance standards adopted by the International Maritime Organization (IMO). IEC/TC80 has therefore been involved in developing and maintaining the set of standards related to the Electronic Chart Display and Information System (ECDIS) in cooperation with the IMO and the International Hydrographic Organization (IHO). The level of cooperation is expected to increase with the implementation of e-navigation and the adoption of S-100 - IHO Universal Hydrographic Data Model as the baseline for the e-navigation common maritime data structure.

IEC/TC80 meets in plenary session every two years to review the main achievements during the intersessional period and agree the future work plans of its working groups, project teams and maintenance teams. The plenary meeting which took place in Busan, Republic of Korea, on 19 and 20 October 2015 brought together 37 participants, including representatives of national committees and observers from international organizations. Mr Yong Baek, Republic of Korea, represented the IHO. The meeting was chaired by Mr Hannu Peiponen from Finland. Mr Peiponen, who has been a long-standing expert contributor to a number of IHO bodies, took over the chairmanship on 1 September 2015 for a six-year mandate, succeeding Dr Andy Norris from the United Kingdom.



TC 80 in session



The representative of the IEC Central Office provided an overview of the processes for the development and maintenance of international standards. He highlighted the recent amendments to the relevant ISO/IEC Directives and explained the use of the IEC expert management system and associated web tools.

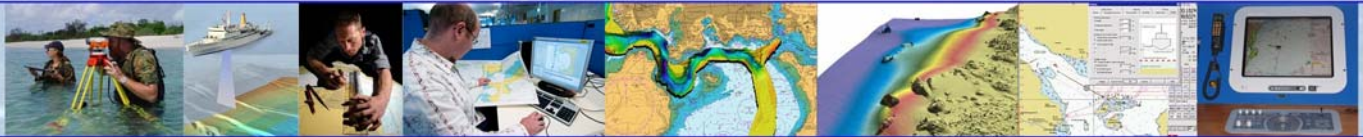
The seven subordinate bodies active during the 2013-2015 intersessional period (two working groups, two project teams and three maintenance teams) reported on their work in relation with the development and maintenance of standards. Two new standards, four new editions of existing standards and one amendment to an existing standard were published:

Project	Subject	Publication Date
62065 Edition 2	Track control system	February 2014
61162-3 Amendment 2	Digital interfaces - Part 3: Serial data instrument network	July 2014
62288 Edition 2	Presentation of navigation-related information on shipborne navigational displays	July 2014
62320-1 Edition 2	Automatic identification system (AIS) - Part 1: AIS Base Stations	January 2015
62320-3 Edition 1	Automatic identification systems (AIS) - Part 3: Repeater stations	January 2015
61162-460 Edition 1	Digital interfaces - Part 460: Multiple talkers and multiple listeners - Ethernet interconnection - Safety and security	August 2015
61174 Edition 4	Electronic chart display and information system (ECDIS)	August 2015

The new edition of IEC Standard 61174 refers to the new editions of the relevant IHO standards (S-52 - *Specifications for Chart Content and Display Aspects of ECDIS*, S-52 Annex A - *IHO Presentation Library for ECDIS* and S-64 - *IHO Test Data Sets for ECDIS*) as reported in IHO Circular Letter 65/2015 dated 31 August.

The development and implementation of e-navigation in relation with the IMO Strategic Implementation Plan was recognized as a driver for the future work of the Committee. The interoperability of marine equipment with shore-based systems and the use of the S-100 framework were identified as important issues. On the basis of a proposal from the Republic of Korea, the Committee decided to establish a working group dealing with standardization issues related to e-navigation and Dr Kwangil Lee from the Republic of Korea was elected as the Convenor.

The further development of the cooperation between IEC/TC80 and the IHO will be considered by the IHO Hydrographic Standards and Services Committee at its next meeting in November 2015.



28TH MEETING OF THE IHO-IOC GEBCO SUB-COMMITTEE ON UNDERSEA FEATURE NAMES
Niteroi, Brazil, 12-16 October

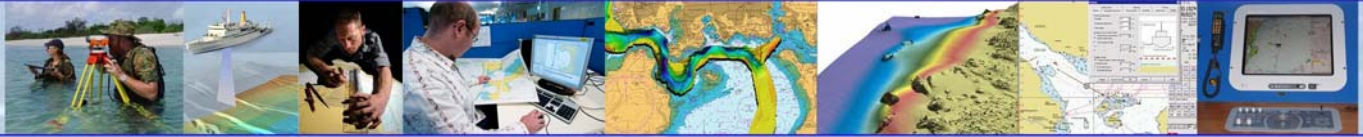
The 28th Meeting of the IHO-IOC GEBCO Sub-Committee on Undersea Feature Names (SCUFN) was hosted at the *Diretoria de Hidrografia e Navegação* (DHN), in Niteroi, Brazil, from 12 to 16 October. SCUFN is tasked with selecting the names of undersea features to appear in the products of the IHO-IOC General Bathymetric Chart of the Oceans (GEBCO) project and on international nautical charts. These names, widely used in scientific publications also, 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 20 participants, including nine of the 12 SCUFN Members (four IOC and five IHO representatives), together with 10 observers. Assistant Director Yves Guillam (SCUFN Secretary) represented the IHB.

The Meeting was opened by Vice-Admiral Antonio Pontes Lima, Director of DHN, and Admiral (Ret.) Luiz Fernando Palmer, ex-Director of DHN. Admiral Pontes Lima stressed the importance of the role played by SCUFN in harmonizing undersea feature names and making these names available to a large community of users. Aware of the magnitude of the task ahead, the Chair thanked the DHN for hosting this important meeting and invited the participants to address the very full agenda straight away.



Attendees, the DHN Director and his staff

After the election of Dr Yasuhiko Ohara (IHO representative, Japan,) as Vice-Chair, the Sub-Committee considered proposals for 72 undersea feature names, submitted by various bodies and supporting organizations: Brazil (12), China (20), Japan (28), Republic of Korea (3), Malaysia (6), Russian Federation (1), Sweden (1) and USA (1). The Sub-Committee also decided to trial a fast-track procedure when reviewing the proposals made by New Zealand for 56 names that already appear on nautical charts.

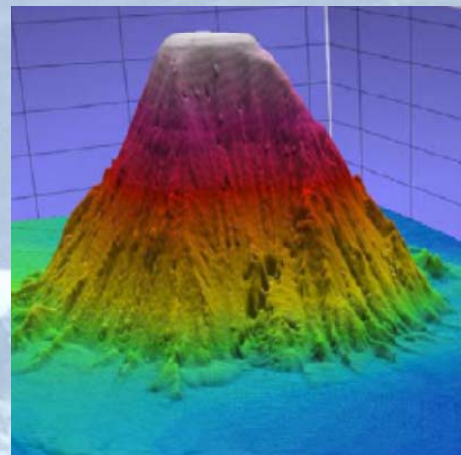


Most of the names submitted to the Sub-Committee were accepted and will be included in the Gazetteer in the near future. A small number were not accepted for various technical reasons.

The success of the Meeting was assisted by the work contracted out by the IHB during the inter-sessional period, when it was possible to address a number of issues identified in 2014:

- the improvement of the consistency of the GEBCO Gazetteer database and the effective implementation of SCUFN decisions;
- the monitoring of the number of PENDING names;
- the evaluation of the on-line tools;
- the preparation of an experimental fast-track evaluation procedure to review the proposals made by New Zealand related to 56 names that already appear on nautical charts;

the preparation of the collection of amendments / clarifications that will need to be included in the IHO-IOC Publication B-6 – *Standardization of Undersea Feature Names* when a new Edition is deemed necessary.

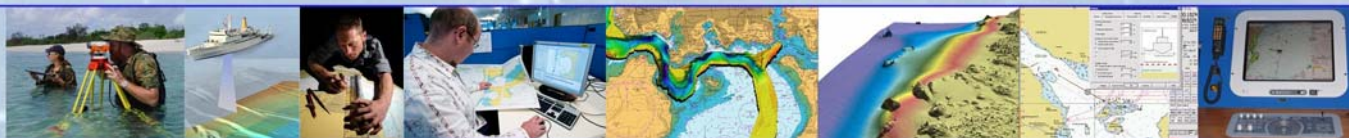


An illustration that supported the proposal for the name *Maximiano Guyot*, which was accepted.

In addition, several other factors were very helpful in making the evaluation process more efficient during the meeting, including:

- most of the proposals were submitted in accordance with the relevant standards and submission procedures;
- the terminology provided in Publication B-6 was applied more consistently;
- associated GIS files were provided in advance, which enabled the IHB to pre-load the data in the GEBCO Gazetteer database and perform some initial quality control and screening;
- the SCUFN Members were able to use collaborative on-line reviewing tools developed by the Republic of Korea, prior to the meeting.

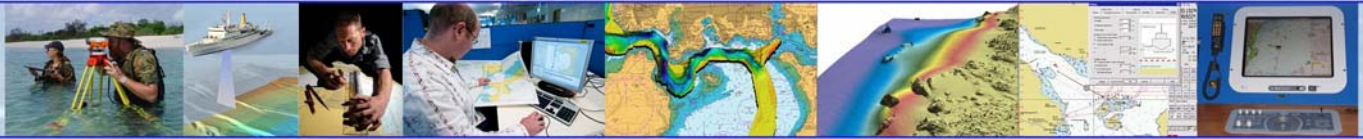
The Sub-Committee also decided to include in its work programme liaison with the IHO S-100 Working Group and the Nautical Cartography Working Group to provide expertise on undersea feature names. The creation of a small project team, led by Canada, is being discussed and will be reported to the Hydrographic Services and Standards Committee (HSSC) for its consideration. Further harmonization between the procedures and definitions used by SCUFN and those used by other national and international naming organizations still needs to be addressed as a matter of high priority. As an example, it was reported to the Sub-Committee that the National



Geographical Names Board of Canada may wish to submit about 950 existing names for approval by SCUFN.

In order to assist national geographic boards and promote further harmonization in the naming of features, SCUFN agreed to make its reserved-list of specific terms publicly available. The Sub-Committee will also publish articles promoting SCUFN responsibilities and achievements for the benefit of national hydrographic offices and scientific and research institutes.

The next meeting of the Sub-Committee is scheduled to take place in September 2016. The venue has not yet been decided.



LIAISON VISIT TO THE IHO-NIPPON FOUNDATION CHART PROJECT COURSE FOR NAUTICAL CARTOGRAPHERS

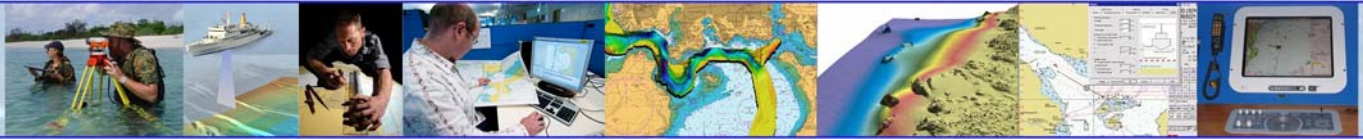
United Kingdom Hydrographic Office, Taunton, UK, 15 October

IHB Director Mustafa Iptes and Mr Kentaro Kaneda (Project Officer seconded to the IHB from Japan) visited the United Kingdom Hydrographic Office (UKHO) on 15 October to meet and brief the trainees attending the seventh Category B nautical cartography training programme funded by the Nippon Foundation of Japan. The IHO - Nippon Foundation CHART (Cartography, Hydrography and Related Training) Project 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 composed of five modules, each module varying from two to five weeks in length. The 7th course started on 7 September 2015 and will end on 18 December.

Director Iptes discussed various topics with the students from **Egypt, Estonia, Fiji, Indonesia, Montenegro, Myanmar and Tunisia**. The students described their experiences and thanked the Nippon Foundation, UKHO and the IHO for the opportunity to improve their knowledge in the field of nautical cartography. Director Iptes gave a presentation highlighting the areas of influence of hydrography and the responsibilities of Governments in relation to the provision of hydrographic data, information, products and services. The vital 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 maintain an alumni relationship after their return home.



The CHART Course trainees and the IHO Liaison Visit team.



12TH CONFERENCE OF THE EAST ASIA HYDROGRAPHIC COMMISSION Manila, Philippines, 13-15 October



EAST ASIA HYDROGRAPHIC COMMISSION



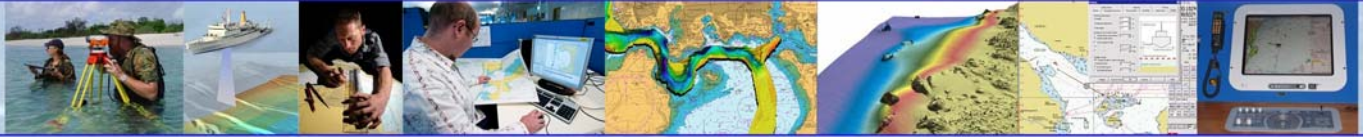
The handover of the EAHC banner signifies the change of Chairmanship from Commodore Cablayan (left) to Rear Admiral Zaaim (right)

The 12th Conference of the East Asia Hydrographic Commission (EAHC) was held in Manila, Philippines, from 13 to 15 October, hosted by the Hydrography Branch of the National Mapping and Resource Information Authority (NAMRIA) of the Philippines and chaired by Commodore Jacinto M. Cablayan, its Director and Chairman of the EAHC. The EAHC meets in Conference every three years and holds annual meetings of its Steering Committee in the intervening years.

Representatives from all but one EAHC Member State attended the Conference: China, Indonesia, Japan, Republic of Korea (RoK), Malaysia, Philippines, Singapore and Thailand. The Democratic People's Republic of Korea was unable to attend. Associate Members, Brunei Darussalam and Viet Nam, attended the meeting together with invited national representatives from Australia, UK and USA and the Chair of the GEBCO Guiding Committee (GC). President Ward attended as an invited observer from the secretariat of the IHO.

Each Member State of the Commission provided a progress report. In addition, the meeting received a report on the EAHC Training and Research Development Center (TRDC) (see: <http://trdc.eahc.asia/>), hosted by the Korea Hydrographic and Oceanographic Agency (KHOA), in Busan, RoK, and established by the Commission to deliver its regional Capacity Building Programme.

The participants discussed proposals to establish a Regional ENC Coordination Centre (RECC) that would validate and harmonise ENC coverage in the region. They also agreed the establishment of a Working Group and a Task Group to report to the Commission at the meetings of its Steering Committee. The Working Group will be tasked to identify practical measures that the Commission and its members might take to provide information as part of the establishment of a regional Marine Spatial Data Infrastructure (MSDI). Meanwhile, the Task



Group will develop and propose a strategic plan and associated objectives for the Commission covering the next ten years.

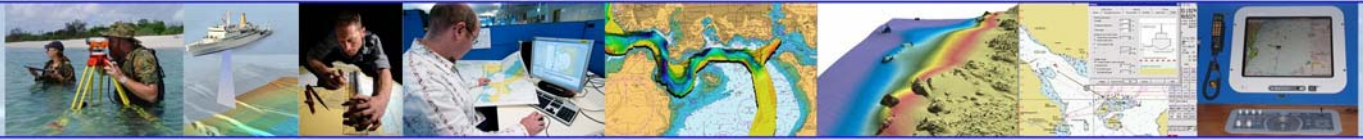
President Ward provided a report on IHO activities of relevance to the Commission. He also delivered a report and presentation of the work of the IHO MSDI Working Group and highlighted its relevance to the Commission. He provided a briefing and guidance on the need for the Commission to establish procedures for the selection of regional representatives to the IHO Council that will be established when the amendments to the Convention on the IHO enter into force.

The Chair of the GEBCO GC provided a briefing on the IHO-IOC GEBCO project.

The full members of the Commission congratulated Brunei Darussalam and Viet Nam on their recent acceptance as Member States of the IHO and anticipated their acceptance as full members of the Commission at the next meeting of the EAHC Steering Committee, subject to the unanimous agreement of the existing members.

At the end of the meeting, the chairmanship of the Commission was transferred to Rear Admiral Zaa'im bin Hasan, the Hydrographer of Malaysia. Mr Shigeru Kasuga, the Hydrographer of Japan, was elected as the Vice-Chair. Both will serve for three years until the next Conference of the EAHC in 2018.

Meanwhile, the members of the Commission will next meet as the EAHC Steering Committee in February 2016 in Indonesia. Those items that were discussed but unresolved during the EAHC Conference will be addressed further during the meeting of the Steering Committee.



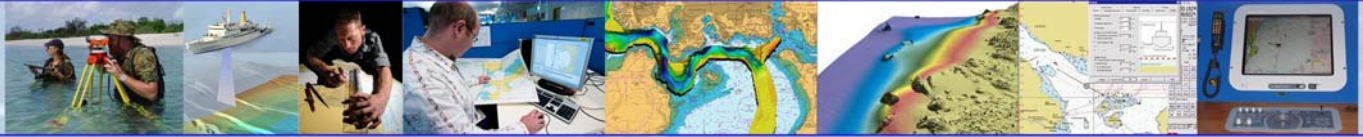
HIGH LEVEL VISIT TO BRUNEI DARUSSALAM Bandar Seri Begawan, Brunei Darussalam, 12 October

Following the GEBCO meetings hosted by Malaysia, IHB Director Mustafa Iptes paid a high level official visit to Brunei Darussalam on 12 October 2015. The purpose of the visit was to welcome Brunei Darussalam to the International Hydrographic Organization (IHO) as a new Member State which became effective on 26 March 2015 and to present the activities of the IHO.

Director Iptes visited the Survey Department which is the official governmental agency dealing with hydrographic activities in Brunei Darussalam where he called on Mr Arefin bin Haji Jaya, Deputy Surveyor General. He provided an overview briefing to the senior members of staff of the Survey Department and invited officials from the maritime departments; the briefing covered the role of the IHO, current and future IHO activities, regional and global cooperation, and the IHO Work Programme. Director Iptes emphasized the rights and responsibilities of Brunei Darussalam as a full member of the IHO. He encouraged the officials of the Survey Department to participate in IHO activities, in particular meetings of the Regional Hydrographic Commission and the sessions of the IHO Conference / Assembly.



Director Iptes and Mr Arefin bin Haji Jaya, Deputy Surveyor General of Brunei Darussalam accompanied by officials of the maritime departments.



IHO-IOC GEBCO (GENERAL BATHYMETRIC CHART OF THE OCEANS) PROJECT ANNUAL MEETINGS Kuala Lumpur, Malaysia, 5 – 9 October

A series of meetings of several bodies of the IHO-IOC GEBCO (General Bathymetric Chart of the Oceans) project were held in Kuala Lumpur, Malaysia from 5 – 9 October 2015:

- 5 October: GEBCO Science Day;
- 6 and 7 October: Joint meeting of the Technical Sub-Committee on Ocean Mapping (TSCOM) and the Sub-Committee on Regional Undersea Mapping (SCRUM);
and
- 8 and 9 October: 32nd Meeting of the GEBCO Guiding Committee (GGC).

The International Hydrographic Bureau was represented at the joint TSCOM/SCRUM meeting and at the GEBCO Science Day by Assistant Directors Anthony Pharaoh and David Wyatt who were joined by Director Mustafa Iptes for the meeting of the GGC.

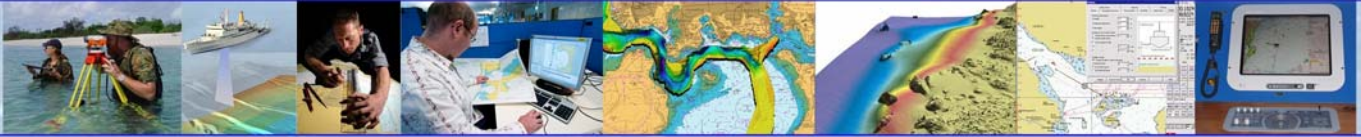
Science Day



IHO-IOC GEBCO Science Day

For the tenth consecutive year, the GEBCO project held a “Bathymetric Science Day” which took place on 5 October at the Kuala Lumpur Convention Centre. The Science Day, which included a poster session and involved contributions from a pleasing number of scholars of the Nippon Foundation ocean mapping programme, featured presentations on a diverse range of topics. The associated presentations will be available from the GEBCO web site at;

http://www.gebco.net/about_us/meetings_and_minutes/gebco_meetings_2015.html



TSCOM and SCRUM

The GEBCO Technical Sub-Committee on Ocean Mapping (TSCOM) and the Sub-Committee on Regional Undersea Mapping (SCRUM) held a joint meeting on 6 and 7 October. The meeting was co-chaired by Dr. Karen Marks (USA), Chair of TSCOM, and Professor Martin Jakobsson (Sweden), Chair of SCRUM.

Following a discussion on the need for a higher resolution grid, the meeting agreed that a new edition of the 30 arc-second GEBCO 14 grid should be produced. The latest SRTM¹ 15 arc-second grid is to be used (provided that there are no copyright restrictions) for areas where no depth data exists. Between June 2014 and August 2015, the GEBCO gridded data sets were downloaded 17,288 times. The meeting agreed that the bathymetric data for coastal and shallow water areas available to GEBCO and its mapping programmes required improvement, and proposed that national hydrographic authorities be invited to provide depth data for these areas where it existed. Crowd Sourced Bathymetry (CSB) would also be an important source of shallow water data in these areas. The meeting discussed various outreach activities such as outreach for high school and college students, using the IHO-IOC GEBCO Cook Book (B-11) as an educational resource, and making scanned versions of the five GEBCO printed map editions available for download and as an online tile map service. Information on the Cook Book was included in Earth Observing System (EOS) news brief and in an article in *Hydro International*.

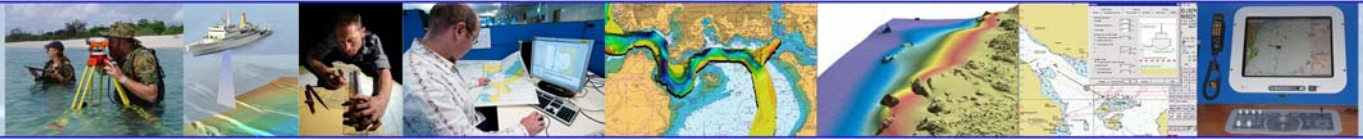
Update reports were provided on the following regional mapping projects: Indian Ocean Bathymetric Compilation (IOBC), North Atlantic Seabed Mapping Project, International Bathymetric Chart of the Arctic Ocean (IBCAO), International Bathymetric Chart of the Southern Ocean (IBCSO) and Baltic compilations.

GEBCO Guiding Committee

The majority of the IHO representatives on the GEBCO Guiding Committee were present, including the two recently appointed members Dr Graham Allen (UK) and Captain Norhizam Hassan (Malaysia). Rear Admiral Patricio Carrasco (Chile), Dr Nataliya Turko (Russian Federation) and Mr Ngouanet Chretien (Cameroon) were unable to attend. Representatives of Malaysia, Republic of Korea, Russian Federation and USA attended the meeting as observers.

The Chair, Mr Shin Tani (IHO - Japan), introduced the revised Terms of Reference and Rules of Procedure for the GGC and explained the background to their revision. The GGC received brief reports from its Sub-Committees 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.

¹ SRTM: Shuttle Radar Topography Mission.

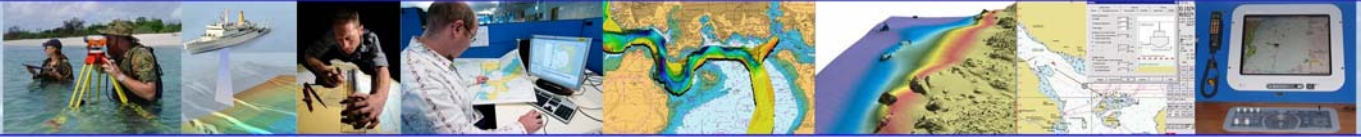


The desire was expressed to seek ways in which the naming process used by the Sub-Committee on Undersea Feature Names (SCUFN) could be made more efficient, one of which was to reassess the way in which the GGC provided its endorsement of names approved by SCUFN. It was agreed in future this would be done by correspondence.

The GGC discussed outreach and ways to raise the profile of the GEBCO project amongst the different stakeholder and user communities - including IHO and IOC Member States, the maritime and scientific community and the public. It was noted that different strategies would be required for each of these groups. The GGC also reviewed its current financial situation in relation to proposed planned projects; the Committee recognised that the sub-committees would need to present more detailed proposals for consideration at future GGC meetings for the subsequent examination and endorsement by the IHO Inter Regional Coordination Committee (IRCC). The current secretary advised the Committee that his term of office will finish at the end of 2015. The GGC accepted the offer of the IHB to provide secretarial assistance and Assistant Director David Wyatt was appointed to the position of GEBCO Secretary from 1 January 2016.



The participants at the GGC32



1ST MEETING OF THE IHO CROWD-SOURCED BATHYMETRY WORKING GROUP

Kuala Lumpur, Malaysia, 7 October 2015

The Crowd-Sourced Bathymetry Working Group (CSBWG), which is tasked by the IHO Inter-Regional Coordination Committee (IRCC) to develop a draft IHO publication on policy for trusted Crowd-Sourced Bathymetry (CSB) which will provide guidelines on the collection and assessment of CSB data, not only for potential use for charting purposes but also for its wider use in non-navigational applications, held its first meeting in Kuala Lumpur, Malaysia on 7 October 2015. The meeting was chaired by Ms Lisa Taylor (USA) with representatives from five Member States (China, France, Malaysia, UK and USA) with observers and expert contributors from the IHO-IOC GEBCO Project, the Professional Yachting Association (PYA) and Sea ID, a company developing open technology for the marine industry. Director Mustafa Iptes and Assistant Director David Wyatt represented the IHB.

The CSBWG received a presentation covering the background to the creation of the Working Group and the tasks which have been set by the IRCC. The participants focused on four key areas – data collection models, appropriate hardware, data formats and the determination of uncertainties – which it was felt needed to be addressed within the guidance document and progressed by the Working Group. It was agreed that an outline for the guidance document should be prepared for presentation at the 8th meeting of the IRCC in May 2016 (IRCC8). A number of participants expressed their desire to actively participate in the Working Group.

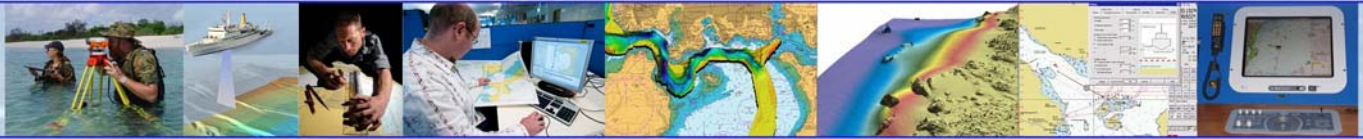


CSBWG1 in session

It was agreed that a further meeting of the Working Group would be beneficial prior to IRCC8 to progress the outline document. Therefore a second meeting is tentatively planned for the early part of 2016 with the dates and venue to be confirmed after consultation with all WG members.

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



SIGNATURE OF A MEMORANDUM OF UNDERSTANDING BETWEEN THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION AND THE WORLD METEOROLOGICAL ORGANIZATION



IHB, Monaco, 7 October

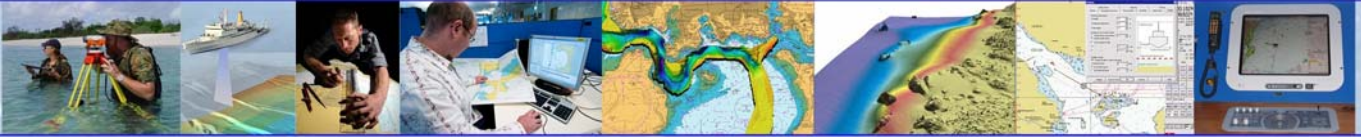
The World Meteorological Organization (WMO) originated from the International Meteorological Organization (IMO) which was founded in 1873. In 1951 the WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences. WMO has a membership of 185 Member States and 6 Territories.



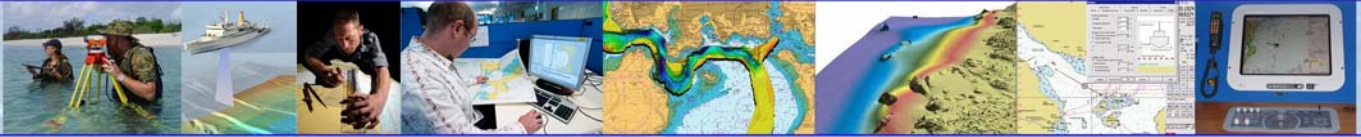
The WMO has worked in partnership with the IHO for many years through its long involvement in the Commission on the Promulgation of Radio Navigational Warnings and its successor the World-Wide Navigational Warnings Service Sub-Committee. The IHO has been involved in the activities of Expert Teams of the Joint Technical Commission for Oceanography and Marine Meteorology of the WMO and the UNESCO Intergovernmental Oceanographic Commission (IOC). The IHO and the WMO cooperate in capacity building as partner organizations through the joint IHO / IMO / WMO / IOC / IALA

/ IAEA / FIG Capacity Building Coordination Meetings held annually since 2008. Despite the long and productive history of cooperation between the two organizations, there was no current formal recognition of this successful and continuing partnership.

Following discussions between the Secretariats of the two organizations, a draft Memorandum of Understanding (MoU) was developed in 2014 to provide an overarching framework for the continuation of consultation between the IHO and the WMO in relation to enhancing Maritime Safety Information, capacity building, and other matters of mutual interest. Subsequent to the approval of the draft by the two organizations, the Secretary-General of the WMO offered to sign the MoU on the occasion of a visit to the IHB in Monaco.



The visit took place on 7 October. Mr Michel Jarraud, Secretary-General of the WMO was accompanied with Mr Edgard Cabrera, Chief of the Marine Meteorology and Ocean Affairs Division. President Robert Ward provided a comprehensive briefing on the IHO and highlighted the various areas of cooperation with the WMO. A number of ideas for further development of this cooperation were discussed and the visit was concluded by the signature of the Memorandum of Understanding.



SHALLOW SURVEY 2015 7TH INTERNATIONAL CONFERENCE ON HIGH RESOLUTION SURVEYS IN SHALLOW WATER Plymouth, UK , 14-18 September



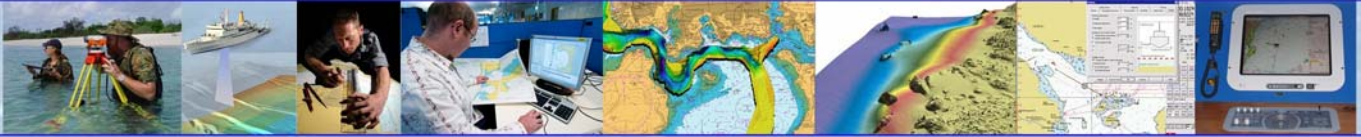
*Shallow Survey 2015 Conference –
Common Data Set presentation*

Shallow Survey 2015 was the 7th International Conference on High Resolution Surveys in Shallow Water. The Conference attracts the top international experts in high resolution surveys in shallow water (less than 200 metres in depth). Established in Sydney, Australia, in 1999 and held since in Portsmouth, New Hampshire, USA, in 2001 and again in Sydney in 2003, Plymouth, UK in 2005, New Castle, New Hampshire, USA in 2008, Wellington, New Zealand in 2012, it returned to Plymouth in 2015. The

unique attraction of the Conference is the Common Data Set, which is a series of different surveys obtained by a range of equipment types and models over the same area of seabed close to the Conference site. This enables delegates to observe and compare how different equipment and techniques work in a common location. In this instance, the Common Data Set was collected within the natural harbour of Plymouth Sound during the summer of 2014.

The Conference was jointly organized by the United Kingdom Hydrographic Office (UKHO) and the UK Maritime and Coastguard Agency (MCA) in association with the University of Plymouth. Over 300 representatives from a number of IHO Member States, Non-Governmental Organizations and Industry heard presentations given by experts from Canada, Denmark, France, Germany, Ireland, New Zealand, UK and USA as well as various industry and non-governmental organizations. Assistant Director David Wyatt represented the IHB.

Assistant Director Wyatt gave a presentation on Crowd-Sourced Bathymetry (CSB) and Open-access Bathymetric Data, in which he described the progress of the IHO CSB initiative, the formation of the CSB Working Group and progress on up-dating the IHO Data Center for Digital Bathymetry (DCDB) to accept CSB and to act as a data discovery portal for the world's bathymetry. He also chaired an open forum that considered 'is IHO publication S-44 - *Standards for Hydrographic Surveys* fit for purpose?' He introduced the topic with a brief presentation on the background and history of S-44 and drew upon feedback received from IHO Member States in response to IHO CL 25/2015.



The Forum included a panel with representatives drawn from a broad section of government and industry organizations – Mr David Parker (UKHO), Dr Tim Le Bas (NOC), Mr Phil Riddell (Shell), Capt Shep Smith (NOAA), Dr Thomas Heege (EOMap) and Mr Don Ventura (Fugro). In general all participants agreed that S-44 was appropriate for surveys for nautical charting, although it was felt there was scope to consider some improvements including a higher specification than the current *Special Order* and the format of the publication in general. It was felt that re-titling the publication might make it clearer that the current standards were intended primarily for surveys for nautical charting purposes and that there are other documented standards for data gathering for other uses. The audience felt it was unwise and undesirable to try and create a broader set of standards for gathering data for a variety of survey uses. The use of exemptions or relaxations from some requirements when used for non-nautical charting surveys could be better explained. The audience also advised that the use of the entire document rather than just the Table of Orders should be highlighted to ensure all specifications were met for individual survey orders. Although there was no urgency for the development of standards appropriate for data obtained from Satellite Derived Bathymetry and Crowd-sourced Bathymetry, the audience indicated that these newer and developing methods of data acquisition should be taken into account in any future work. The open, direct engagement by the IHO was welcomed and particularly well received.

The next Shallow Survey Conference is planned to be held in St John's, Newfoundland, Canada in 2018. The Conference report and all papers will be available from the Shallow Survey 2015 web site at <http://www.shallowsurvey2015.org/>.

The Conference was followed by a meeting of the Resurvey Working Group of the North Sea Hydrographic Commission (NSHC). The meeting was chaired by Dr Leendert Dorst (Netherlands) with representatives from 7 NSHC Member States (Belgium, Denmark, France, Germany, Netherlands, Sweden and UK) with Finland representing the Baltic Sea Hydrographic Commission. Assistant Director David Wyatt represented the IHB. The meeting discussed some of the outcomes from the Shallow Survey Conference, including the S-44 Open Forum with additional observations and comments provided for submission to HSSC7. A progress report on the development of the NSHC website was provided and participants provided comments and suggestions for consideration during the next phase of work. The meeting also received reports on NSHC, European Union and national developments since the previous meeting. A brief on the Belgium, France and UK Dover Strait survey strategy was provided. The applicability of alternative survey methods was discussed and the progress towards a suitable hydrographic risk assessment methodology for the North Sea area was given.