

## **Report prepared for the International Association of Institutes of Navigation (IAIN)**

**Mr John Pepper, Director, OceanWise Ltd**

### INTRODUCTION

- a) The Elected Chair of the event was Dr Parry Oei, Hydrographer of Maritime Port Authority, Singapore. Elected Vice-Chair was Capt. Brian Connon, National Geospatial-Intelligence Agency (NGA) Department Of Defense, USA.
- b) A revised Host Agreement was signed between IHO Secretary General Robert Ward and His Serene Highness Prince Albert II to accommodate the new constitution of the IHO.
- c) The Agenda for the 1<sup>st</sup> Assembly was adopted by Member States.
- d) The number of full Member States (MS) of the IHO is now 87. The following States presented their flags at the event: Cameroon (81<sup>st</sup>); Georgia (83<sup>rd</sup>); Vietnam (84<sup>th</sup>); Brunei Darussalam (85<sup>th</sup>) and Malta (86<sup>th</sup>).
- e) 1<sup>st</sup> Assembly was attended by delegations from 77 Member States (MS) and over 30 Associate MS, Experts Contributors, Intra-Governmental and Membership bodies

### PROPOSALS SUBMITTED FOR CONSIDERATION BY THE ASSEMBLY

#### 1. PRO 4: Rewrite of the IHO Strategic Plan

- 1.1. The high priority given in the document for an increase in staff at the IHO was questioned by USA, Norway, France, Canada, Italy, China, Turkey and South Africa. It was agreed that this would only come into effect when funds permitted.
- 1.2. UK tabled a proposal outlining that the Strategic Plan be completely re-written to better reflect the priorities facing the IHO in terms of 'where it is going' and 'how IHO will get there'. Specifically the HSSC Work Plan was considered too ambitious and lacked strategic targets. This proposal was supported by other MS.

OUTCOME: Proposal accepted with a fundamental review of the plan by 2020 for approval at 2<sup>nd</sup> Assembly. IHO Council will be responsible for implementing the instruction of 1<sup>st</sup> Assembly.

2. PRO 1 & 13: Update of Special Publication S-23 – The Way Forward for the Publication of a 4<sup>TH</sup> Edition and discuss the future of the Outdated Publication taking into account the Report of Work of April 2012

Publication S-23 edition 3 was published in 1953. Despite the Report on Work to revise the publication (2012), no revisions have been made due to the lack of agreement of a naming convention for sea areas in SE Asia. Japan, Republic of Korea and Russia acknowledged that it needs urgent attention and that without action the publication will become irrelevant and that, if not resolved, consideration be given to the withdrawal of S-23.

OUTCOME: Agreement was reached that 'informal' discussions will now take place to resolve the state of impasse and that IHO Secretary General will convene a meeting of MS affected and for that group to report back to 2<sup>nd</sup> Assembly in April 2020.

3. PRO 9: Revise IHO Publication M-3; Repertory of IHO Resolutions

In order to reflect the new structure of the IHO as defined in the amendments to the Convention on the IHO and the other Basic Documents of the IHO that entered in to force on 8 November 2016, the Assembly was requested to agree to editorial amendments to IHO Publication M-3 - Repertory of IHO Resolutions, 2nd Edition - 2010, Updated to July 2015.

OUTCOME: Approved in principle but review of M-3 will be necessary in light of resolution revisions (such as the new 3-year planning cycle).

4. PRO 6: Amendment to IHO Resolution 2/2007 for Improving the Validation Procedure of Making Changes to Specifications Based on S-100.

The proposal seeks to establish a test bed to validate changes to S-100 based specifications and to share the results on the IHO website. The body responsible for doing the work is required to provide details specifications for tasks, items and criteria for phased testing, on interoperability between specifications and those of other technical committees.

OUTCOME This proposal was considered by Assembly and accepted.

5. PRO 12: Revise IHO Resolution 4/1967 as amended -Submarine Cables

The Red Book has been amended to re-state the care mariners must take when in the vicinity of submarine cables particularly in order to minimize the risk of such damage to vessels as much as possible:

5.1 Vessels should avoid any such activity at a minimum distance of 0.25 mile on either side of submarine cables.

5.2 No attempt shall be made to cut a cable

5.3 Incidents involving the fouling of submarine cables should be reported immediately to the relevant authorities.

OUTCOME: Amendments to the Red Book accepted.

6. PRO 2: Development of IHO E-Learning Capacity

To approve the following provisions:

6.1 That the IRCC defines a strategy regarding on-line training

6.2 That the IRCC pilots the implementation of this strategy in the capacity building programme

MS stated that e-learning is a valuable tool but that a blended approach is the modern way including elements of 'on the job' training with practical aspects

Modes of learning and effectiveness of e-learning was discussed. A global offer should deliver reactivity, flexibility, consistency and be modular in nature.

In order to implement e-learning, a review of existing technologies is required (e.g. IMarEST, Skilltrade).

OUTCOME: IRCC to identify subjects where a modular approach is suitable for e-learning and provide costs and expected ROI to the IHO.

7. PRO 8: Revision of Standards of Competence for Hydrographic Surveyors

Approve the preparation, under IHO Secretariat responsibility, of a questionnaire with the task of providing suggestions for the IBSC from Hydrographic Offices towards a new amended version of the Standards of Competence, in order to accommodate for the needs and demands of a world where hydrographers are

employed in a wider range of activities - boundary delimitation, sea-related business, environment, etc. – and not just as cartographers.

- 7.1 MS expressed concern that the current IBSC Standards of Competence do not fully meet the requirements of hydrography and cartography in the 21<sup>st</sup> century.
- 7.2 The International Federation of Hydrographic Societies supported the proposal. IMarEST offered assistance on a no cost basis to enable the improvement of standards whilst taking into account the experience of end users.
- 7.3 Australia disagreed stating that the International Board on Standards and Competence (IBSC) is not adequately resourced to deliver changes.

OUTCOME: The proposal is to be taken to the Inter-Regional Coordination Committee (IRCC) 9 in June 2017 and for it to define the way forward.

#### 8. PRO 5: Development of an IHO Satellite-Derived Bathymetry (SDB) Assessment and Charting Programme

This technology is now matured to a level whereby imagery is available of a resolution suitable for risk assessment to analyse coastal and shallow water landscape and geomorphology. However it alone cannot be used in isolation and cannot be guaranteed to provide accurate enough depths for navigation. However, it is now proving to be a cost-effective and useful reconnaissance tool.

Assembly debated the pro's and cons of this technology, with arguments from France, Republic of Korea, Canada and USA all see SDB as a low cost, easy to use risk assessment and chart analysis tool in areas where charted data is poor or non-existent. The USA is using SDB extensively. Funding for such reconnaissance would be available from the IHO Capacity Building (CB) Fund for those MS or aspiring MS to begin to build competences in hydrography without the need to deploy expensive survey vessels. REGIONAL Hydrographic Commissions (RHCs) are to include SDB in their work programmes for 2018 onwards

OUTCOME: Proposal Approved. The Nautical Chart Working Group (NCWG) is required to undertake analysis of its performance in different conditions for charting purposes.

## 9. PRO 3: Revision of the Resolutions in Response to Disasters

The following actions were presented under this proposal:

- 9.1 To encourage co-operation in the development and implementation of restoration planning.
- 9.2 Plan and organise CB activities to improve disaster management
- 9.3 Prepare support plans in advance
- 9.4 Identify long term impacts on ground level and water depth post-impact
- 9.5 Monitor disaster risk and research by participation

OUTCOME: Proposal was approved. Assembly tasked the IRCC to review the actions to make them less prescriptive and report back.

## 10. PRO 11: Adopt a Resolution on improving the availability of Bathymetric Data Worldwide

This proposal was supported by two presentations; firstly by Ms Jenny Jencks (IHO Data Centre) and then by Mr Don Ventura (Fugro).

Ms Jencks informed the Assembly that the IHO is developing a global resource of bathymetry in its Data Centre Database (DCDB). Its vision is for the collection, archiving, release and re-use of bathymetric data. Data is now flowing into DCDB from multiple sources to augment that collected by IHO through the GEBCO initiative. Recent new sources include data from the EU EMODNet programme, MS National Stores as well as from unknown 'hidden' sources. Crowd Sourced Bathymetry (CSB) has been received from the Rose Point Project in SE Asia. The Seabed 2030 (GEBCO) challenge, the Open Geospatial Consortium (OGC) Data Exchange Standards and the International Chamber of Shipping supported the initiative.

The DCDB Guidance documentation published in 2017 for ingestion and curation needs to be revised in the light of the import of CSB and potentially SDB in future.

Mr Ventura advocated a multi-platform and sensor approach to future data capture as well as a multi-user approach to the defining of specifications for data capture. This is because more surveys are now undertaken for a multi-user community and not just for nautical charting. Adopting a data centric approach rather than serving one output, the chart, will enable improved products and services to be delivered to a wider user base. The cost benefits of this approach are great but are not yet fully appreciated by IHO MS.

OUTCOME: The resolution was adopted.

11. PRO 7: United Nations Committee of Experts on Geospatial Information Management Shared Guiding Principles for Geospatial Information Management

The United Nations initiative on Global Geospatial Information Management (UN-GGIM) is playing a leading role in setting the agenda for the development of global geospatial information and to promote its use to address key global challenges. It provides a forum to liaise and coordinate among Member States, and between Member States and international organizations. Its areas of work includes

- a) Development of the global geodetic reference frame
- b) Development of a global map for sustainable development
- c) Geospatial information supporting Sustainable Development and the post 2015 development agenda
- d) Adoption and implementation of standards by the global geospatial information community
- e) Development of a knowledge base for geospatial information
- f) Identification of trends in national institutional arrangements in geospatial information management
- g) Integrating geospatial statistics and other information
- h) Legal and policy frameworks, including critical issues related to authoritative data
- i) Development of shared statement of principles on the management of geospatial information
- j) Determining fundamental data sets

IHO Secretary General outlined the relevance of the work of UN-GGIM to IHO MS. IHO Sec Gen. is an observer at UN-GGIM but to date no UN-GGIM MS has a delegate representing its hydrographic office. This is a very worrying situation and one that, if not remedied soon, could render the work of the hydrographic community weakened as other in-country Government Agencies, rather than the HO, take a leading role in the provision of fundamental datasets.

IHO Secretary General will be attending the Seventh Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM); to be held from 31 July - 4 August 2017 at the United Nations Headquarters in New York.

OUTCOME: The proposal was noted by the Assembly.

## REPORTS FROM COMMITTEES

### Highlight Report from the Hydrographic Standards and Services Committee (HSSC)

- a) The heavy workload of the HSSC is causing concern. In view of this, it was decided to merge the Tides, Water Level and Currents activities into one Working Group (TWCWG).
- b) The WG's now working on a specific project based working model.
- c) Activities associated with Standards development and maintenance to be reviewed at HSSC-9 in 2017.
- d) The MSDIWG was transferred from HSSC to the IRCC in 2015 to better reflect its predominant role in data and organisational governance in support of the wider sharing, exchange and re-use of HO data.
- e) ECDIS is now the accepted means of digital chart navigation with the safe dissemination of encrypted ENC's. ENC Display issues have been resolved and the issues associated with the advent of greater bathymetric survey density addressed.
- f) S-101 compliant next generation ENC'S will be operational and in use by 2019.
- g) The S-100 concept specification now goes well beyond traditional navigational needs with application specific specifications being developed(e.g. S-129 Under Keel Clearance)

### Highlight Report from the Inter-Regional Coordination Committee (IRCC)

- a) The formation of the Atlantic Region Bathymetric Data Cooperation Initiative between Canada, USA and Ireland has been successful.
- b) IOC/GEBCO 'Ocean Floor Mapping Programme' has a key objective to map all objects over 100m by 2030.
- c) Overlapping ENCs remain a problematic area with more effort needed to ensure seamless boundaries between ENCs and hence seamless navigation!

- d) WORLD ENC Distribution: A decision has been taken not to amend the principles of WEND, which is to ensure a worldwide consistent level of high-quality, updated official ENC's through integrated services that support chart carriage requirements of SOLAS Chapter V, and the requirements of the IMO Performance Standards for ECDIS.
- e) The Capacity Building Sub-Committee discusses all requests for CB FROM Regional Hydrographic Commissions CB Coordinators. Excellent work over the last 3 years was noted by Assembly in most Regional Hydrographic Commission areas.
- f) MSDIWG has reported that MSDI 'best practise' is now being developed in, for example, the Baltic, Arctic and SE Asia regions.
- g) UN Oceans Conference requested voluntary contributions from IHO MS for its 'Rio+20 for Oceans' initiative. Secretary General proposed the the IHO Capacity Building and Ocean Floor Mapping programmes be worthy of submissions showing cooperative 'best practise'.

## ELECTIONS

Due to the retirement of Mr Robert Ward (Sec. Gen) and the re-election of two Directors for the next three years; elections for the post of Secretary General and Directors for the period September 2017 – August 2020 took place on Friday 28<sup>th</sup> April.

The following candidates were elected by MS ballots as follows:

Secretary General: Dr Matthais Jonas, Hydrographic of Germany (BSH).

Director One: Capt Abri Kampfer, South African Hydrographic Office (SAN).

Director Two: Director Mustafa IPTES (IHO Secretariat).

The Assembly paid tribute to the hard work that both Mr Robert Ward and Mr Gilles Bessero have given to the IHO over that past eight years.

## **ANNEX 1**

### **BRIEF OVERVIEW OF REGIONAL HYDROGRAPHIC COMMISSION (RHC) ACTIVITY**

#### Baltic Sea

- a) Joint Baltic North Sea RHC Bathy Database now in place with harmonised chart datum across the region.
- b) Development of a Marine Spatial Data Infrastructure (MSDI) with North Sea RHC.
- c) Coordinated survey programmes now agreed.

#### East Asia

- a) Training and Research & Development Centre created at KHOA, Busan, South Korea complete with e-Learning facilities.
- b) The Charting and Hydrography Committee active with working groups addressing, for example, the future use of Marine Information Overlays (MIO) and Satellite Derived Bathymetry (SDB).
- c) Vietnam and Brunei Darussalam are now members of the RHC.

#### East Atlantic

- a) The RHC comprises six MS including Cameroon.
- b) France has conducted surveys in Gabon, Sao Tome, Morocco, Cameroon.
- c) SDB has been developed for Cote D'Ivoire
- d) Portugal has surveyed in Cape Verde Islands
- e) Major challenge is in updating MS points of contact due to swift rotation of staff.

#### Meso-American & Caribbean

- a) MSDI 'best practise' steered through the Maritime Economics Infrastructure Programme (MEIP) Working Group.
- b) An ENC Online Viewer is hosted by NOAA but 'discovery only' facility.
- c) High cost of surveys coupled with low budgets means many MS and Associate cannot afford to survey. As a result a lack of ENC's in the region is still hampering ship traffic volumes.

#### Mediterranean & Black Sea

- a) Lack of consistent International (INT) Chart Schemes despite region hosting 25% of World shipping traffic.
- b) Improved knowledge and appreciation of the marine environment needed through better interaction with relevant organisations.
- c) Lebanon is in the process of developing a Hydrographic Office.

#### Nordic

- a) Validation of multi-beam survey data on a regional basis to iron out discrepancies.

- b) Finland and Sweden have harmonised all depth data and presented across all ENC scale bands.
- c) ENC data now made available to non-SOLAS re-use.

#### North Indian Ocean

- a) MS are not yet self-sufficient relying on IHO sponsored capacity building to assist build knowledge and expertise.
- b) All surveys planned in the region were completed on time.

#### North Sea

- a) EMODnet Phase 4 Hydrography programme now underway will provide improved resolution bathymetry data across the EU.
- b) Extensive Bathy data capture programme continues on an annual basis.
- c) Shared MSDIWG with Baltic RHC vertical datum coordination work.

#### RSAHC (Middle East)

- a) Improving infrastructure in the region through co-operation and capacity building.
- b) Industry participation and assistance vital to success.
- c) Challenges with sharing data and communications persist.

#### South Africa & Islands

- a) Successful International Chart Coordination WG programme for the region will result in an ENC regional catalogue in 2018.
- b) Poor attendance by Associate MS at meetings.
- c) Limited capacity building opportunities.
- d) Survey data capture and reporting is at best intermittent.

#### South East Pacific

- a) Information exchange is patchy.
- b) Budgetary restraints means meetings difficult to arrange.
- c) CBSC coordination in the region needs improvement.

#### South West Atlantic

- a) Survey status and inputs to IHO S-55 publication.
- b) INT charting coordination improving.
- c) Harmonisation of ENC data now happening with validation at IC-ENC (Taunton).
- d) Hydro/Cartho River Survey Technical Workshop held.

#### South West Pacific

- a) Significant progress reporting in hydrographic survey capability.
- b) South West Pacific Communities Hydrographic Unit established.
- c) Pacific Islands Coordination on Transport (PCIT) established.
- d) Cook Islands is developing a hydrographic capability.
- e) Vanuatu and Solomon Islands has established Maritime Offices.
- f) UKHO and Australian HO (AHS) remain primary charting authorities.