

14th South West Pacific Hydrographic Commission Meeting
30 November - 02 December 2016 – Noumea, New Caledonia

Draft Minutes

1. Opening

1.1 Opening Remarks by the Chair

Commodore Brett Brace, SWPHC Chair, welcomed the delegates to the meeting and thanked the hosts (Government of New Caledonia, SHOM, and SPC) for their collective effort in hosting various activities during the week, i.e. SWPHC14 Meeting, SWPHC Technical Workshop and social events. He emphasised the importance of the regional meetings which provided an opportunity for sharing information and networking among the participants. He highlighted the theme for World Hydrography Day 2017 “*Mapping our seas, oceans and waterways – more important than ever*”. It is not just about hydrography for charting or safe navigation of ships, but also on how do we use hydrography to underpin the blue economy, underpin strategies for managing our environments, etc.

1.2 Address by the Host (Government of New Caledonia)

Captain Eric Mevelec (Director, Department of Maritime Affairs), speaking on behalf of The Honourable Mr. Gilbert Tyuionon (Minister for Public Infrastructures and Air, Land and Maritime Transport), welcomed all delegates to Noumea. He highlighted the importance of hydrography for New Caledonia relating to safe navigation for the inter-island maritime traffic and identifying new areas for cruise industry.

1.3 Address by the Secretary-General of the IHO

Mr Robert Ward, Secretary-General of the IHO, thanked the Chair and the participants and mentioned that he was pleased to be back in the region to attend the Commission meeting. He commented that, based on his observations at the workshop which preceded the meeting, he noted a significant change between the previous two Commission meetings and this meeting. Mr Ward congratulated the Pacific Island Countries and Territories (PICTs) in moving forward regarding their strategic development plans for hydrography and having a sense of ownership of the issues. He added that these could be further progressed by working individually as well as collectively – i.e. with the IHO Secretariat, SWPHC Secretariat, neighbouring State/s, expert contributors, etc.

1.4 Administrative Arrangements

The Chair invited all delegates to introduce themselves, and reminded participants of the role of the SWPHC meeting.

Captain Mevelec provided the meeting participants with the required housekeeping details.

The Secretary, Mr. Jasbir Randhawa, requested participants to review and confirm the List of Participants and provide any updated/additional information. The updated list appears as document **SWPHC14-01b rev 2** on the IHO website (www.iho.int)

2. Agenda and Timetable approval

The Chair introduced the Draft Agenda and Timetable (**SWPHC14-02 rev1**). Members were invited to comment and adopt the documents. Vice Admiral Bruno Frachon (France) proposed that the following agenda item be included, noting the experience gained with Tropical Cyclones ‘Pam’ and ‘Winston’ in the region:

“Response to Marine Disasters with particular reference to the proposal by Japan to the IHO

Assembly to be held in April 2017”.

The Chair agreed that it be discussed under ‘Other Business’. Having no other points, the meeting adopted the draft agenda and timetable with inclusion of this additional item.

3. 13th SWPHC Minutes and Status of Actions

The Secretary (Mr Jasbir Randhawa) informed that the SWPHC13 draft minutes had been circulated to the participants in 2015. Comments received were incorporated in the final version that was uploaded onto the SWPHC website as well as circulated to the delegates. As there were no further comments the Commission approved the SWPHC13 minutes. (SWPHC14-03a)

The Secretary and action owners provided updates on the status of the List of Actions from SWPHC13 (SWPHC14-03b rev 1). All items were considered complete or have been added to the agenda for further discussion in detail.

4. IHO Matters

4.1 IHO Secretariat Report

Mr. Robert Ward, IHO Secretary-General, provided the IHO Secretariat Report (SWPHC14-04.1) to the meeting, highlighting the activities that may impact the work of the SWPHC. These included:

Ratification of Protocol of Amendments to the IHO Convention

The Protocol of Amendments to the IHO Convention and its supporting Basic documents entered into force on 8 November 2016, resulting in following significant changes:

- 3-yearly Assembly cycle instead of the previously 5-yearly Conference cycle, with the 1st IHO Assembly to be held in April 2017
- IHO Council will be established and will meet annually (in October)
- States that are already Member States (MS) of the United Nations and wish to join the IHO do not need to seek approval of existing IHO MS
- When voting by correspondence is required through the Council, decisions will be taken based on majority of MS that cast a vote, instead of existing arrangements where majority of all MS entitled to vote is required

Regional Hydrographic Capability

The IHO President attended the Asia Pacific Heads of Maritime Safety Authorities (APHoMSA) meeting in New Zealand in February 2016 and provided a country-by-country status report on hydrographic capability. He stressed the obligation for providing an appropriate national hydrographic service that is placed upon Maritime Administrators through SOLAS V/9 and the fact that this was an auditable obligation under the IMO Audit Scheme. A summary of the report is included at Annex A of document SWPHC 14-04.1.

All States were requested to review the entries in this report (assessment table) and provide updates/adjustments to the IHO Secretariat. He highlighted the significant shortcomings in service delivery of maritime safety information in many States in the region.

IHO GIS and Databases

Work has continued on the development of the IHO GIS, comprising two main parts:

- a country information database, and
- a regional information database.

The country information database has been progressively upgraded to include additional administrative information and facilitate the maintenance of the IHO yearbook (IHO Publication P-5) and related lists posted on the IHO website. Countries in the SWPHC Region were invited to review their entry in the Yearbook on an annual basis and provide the IHO Secretariat with appropriate updates or report no change.

An ESRI-based GIS solution is being implemented to develop further the regional information

database. This will enable access to various layers of information through the IHO website and through cloud-based on-line GIS options. The IHO ENC Catalogue and the IHO GIS for Antarctica have been transferred to this new environment. Work has continued on developing a GIS database application to support C-55 'Status of Hydrographic Surveying and Charting Worldwide' and the work of the IHO. Countries in the SWPHC Region were invited to review their entry on an annual basis and provide the IHO Secretariat with appropriate updates or report no change.

Publicity and Outreach

There was need to stress about other users of hydrography than just making nautical charts – i.e. the health of the oceans and how we can sustainably exploit the wealth of the oceans (blue economy). States are encouraged to link hydrography to UN Post 2015 development agenda, particularly sustainable development goals:

- SDG14 – use of the oceans
- UN Conference on SDG 14 (UNHQ, 5-9 June 2017)

The theme for World Hydrography Day 2017 “*Mapping our seas, oceans and waterways – more important than ever*” promotes:

- Our roles and responsibilities
- The fundamental importance of hydrographic data
- Crowd-Sourced Bathymetry
- Data mining and data discovery
- Satellite Derived bathymetry
- MSDI

A number of video clips about hydrography are available from YouTube via IHO website including “*What is Hydrography*”.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.01	4.1	All Members to encourage regional States to join SWPHC as Associate Members	Chair, All Members	Ongoing
14.02	4.1	All non-Member States in the region to consider joining the IHO	All non-Member States	Ongoing
14.03	14.1	All States to review the IHO Secretariat hydrographic capability assessment and provide comments to the Secretariat and SWPHC Chair	All States	end February 2017
14.04	14.1	All States to review entries in IHO Publications C-55 and P-5 (Yearbook) and provide updates or confirmation to IHO Secretariat	All States	end February 2017

4.2 SWPHC Report to IRCC8

CDRE Brace provided a summary of the SWPHC Report submitted to the 8th Meeting of the Inter-Regional Coordination Committee (IRCC8) held in Abu Dhabi, UAE in May 2016 (**SWPHC14-04.2b**). It included:

- The pending IHO membership of Solomon Islands and Vanuatu, and asking IRCC members to support these applications
- Activities completed since CBSC13:
 - IHO CB Activities : Technical Implementation Visits to Vanuatu and Kiribati; Tides and Water Level Technical Workshop
 - Non-IHO CB Activities: One participant from Tonga for Group Training Course on Hydrographic Survey (Japan International Cooperation Agency); One participant from Fiji attended the 7th Chart Project Course at the UKHO
 - South West Pacific Regional Hydrography Programme (MFAT New Zealand Aid

Programme)

- Activities not yet completed and new or ongoing initiatives:
 - IHO CB Activities : Technical Assessment & Advice Visits to Samoa and Tuvalu; Technical workshop for PICTs in Formulating and Implementing Strategic Development Plans for Hydrography; MSI Regional Workshop
 - Non-IHO CB Activities: MFAT New Zealand Aid Programme - Pacific Regional Navigation Initiative (PRNI) - a 5-year NZ\$5M development activity that is focusing on navigation-related aspects of maritime safety – commenced in April 2015
- Disaster Response activities in accordance with IHO Resolution 1/2005:

Extensive damage was done by Tropical Cyclone WINSTON in Fiji in February 2016. Bulk of initial response and assessment was provided by military forces - such as Australian, New Zealand, French and Indian Forces. Urgent notification was done by the relevant authority (MSA Fiji and NAVAREA14 coordinator - NZ), UKHO, as Primary Charting Authority (PCA), reacted very quickly to assess the nature of the damage to Fiji's maritime infrastructure, resulting in the report: *'A preliminary Satellite Imagery Analysis of Navigation & Coastal Damage (Imagery available to 25th February 2016'*. It important to acknowledge that SWPHC's role is not to be part of the initial response of saving lives, medical response, etc. but the subsequent phase of providing assistance in alerting mariners about changes in quality of charts and subsequently if surveys are required to improve the charts, open up ports, etc.

4.3 Other Reports – WENDWG, HSSC and MSDIWG

CDRE Brace stated that the remaining reports (**SWPHC14-04.3-04.5**) dealt mainly on technical matters of the other committees, i.e. HSSC, WENDWG, MSDIWG, and are well covered by the PCAs in the region. He invited members to discuss with their respective PCAs as to which of these matters relate to charting, charting support, capacity building activities that may impact them now or in the future.

5. Membership and Statutes

At the last SWPHC Meeting members briefly discussed the updating of SWPHC Statutes to reflect the procedure for election of the SWPHC Member State/s to the IHO Council and also to make the Statutes gender neutral. It was decided that the Chair would circulate the draft Rules of Procedure (for the election) and the proposed updates to the Statutes, and seek comments from Members. Accordingly the draft documents were circulated to members in April 2016. Subsequently, taking into consideration the comments received, a revised version of the SWPHC Statutes (**SWPHC14-05a-d**) was distributed as part of the SWPHC14 documentation.

RAdm Tim Lowe commented that, noting the new organizational structure of the IHO, it would now be necessary to replace the term 'IHB' with 'IHO Secretariat' in items 3(b), 3(c), 4(b), 7(c) and 13 of the document.

Following a resolution proposed by United Kingdom and seconded by New Zealand the revised Statutes, incorporating replacement of the term as outlined above, were unanimously adopted by the Members.

6. National Reports

6.1 Australia

CDRE Brett Brace provided a summary of Australia's national report (**SWPHC13-06a**) as follows:

The Australian Hydrographic Office (AHO) moved from Navy to be part of the Australian Geospatial-Intelligence Organisation (AGO) on 01 July 2016. The Defence White Paper states

that the future of hydrographic capability will be ‘an efficient combination of military and commercial hydrographic and oceanographic surveying capabilities’. This will provide an opportunity to partner with industry to carry out work which the Navy has been doing traditionally.

Survey activities focussed in areas off Queensland, the North-West Shelf of Australia to support cruise shipping and maritime control activity. Surveys were also conducted in Papua New Guinea under the MOU.

With regard to charting activities, priority is in supporting the ENC portfolio, with ENC Updates remaining as the highest priority. Port ENCs are being recompiled at larger compilation scale and with higher density detail. Currently there are approx. 850 ENCs and 470 paper charts. The AHO is working with UKHO and SIMSA to assume PCA role for Solomon Islands in early 2017. This will add another 50 ENCs and 30 paper charts. In terms of technology, the AHO was migrating to an integrated suite of CARIS services. ENC sales were increasing while paper chart sales had dropped by 32 %.

The challenges mainly relate to people and resources, although recent organisational changes have improved this situation. System-based challenges are being addressed through ‘evolutionary’ sustainment. The big challenge ahead is parallel production of paper charts, S57 ENCs and S101 ENCs – yet to understand scale and scope of challenge.

6.2 Fiji

Lieutenant-Commander Gerard Rokoua presented Fiji’s national report (**SWPHC14-06b**) outlining the activities since the last SWPHC meeting.

A search of the archives revealed a Cabinet paper ‘Cabinet Decision 358 of 1990’ which outlined the formation of a National Hydrographic Plan through the formation of a National Hydrographic Committee. It also covered oceanographic activity. Subsequently legislation of the hydrographic services had been successfully achieved with incorporation into Act 14 of 2014 (116A 1(d)) – “*maintain and disseminate nautical charts, including authorising charts for use in Fiji waters*”.

The total staff numbers are 17, comprising 3 Cat ‘A’ Surveyors, 4 Cat ‘B’ Surveyors, 2 Cat ‘B’ Cartographers, 2 Cartography Trainees and 6 Hydrographic Survey Recorders.

Survey activities covered a total of 220 days - including Nadi Bay Survey (139 days), Post dredge and Pre dredge surveys for Ministry of Transport (10 days), Rotuma Island Survey (with AHO) - (15 days), Nadi International Airport Runway extension survey for Airports Fiji Limited (13 days). Three months were devoted to Human Disaster Assistance Relief in connection with Tropical cyclone WINSTON. An uncharted shoal was discovered in the course of this activity.

Charting activity in progress related to:

- F5 / BA747 (UKHO) – useful to cruise shipping and yachting
- Rotuma Island (joint survey carried out with AHO)
- Military maps (requested by Army for military exercises)
- EEZ and Territorial seas (in association with Geoscience Australia)
- Planned charts of Ports & Anchorages in Viti Levu

It is planned to form an Oceanography Section having 5 personnel, a Database, Tidal data and Oceanographic data.

A Strategic Plan is being formulated. It is a 5 year project (2016 - 2020) to include Climate monitoring stations - sea level rise and inundation issues; Wave monitoring buoys; Ocean buoys; 35m Oceanographic vessel (equipped) - to be provided by Republic of Korea; Charting joint survey for Bligh Waters; Capacity Building (Cat B, Oceanography) - provided by Republic of Korea;

CDRE Brace commented that Fiji had achieved a great deal in the last 18 months. He requested Fiji to share its experience with members regarding the way it went about in getting the government/navy to raise the profile of hydrography. Lieutenant Commander Rokoua stated that Fiji Hydrographic Service (FHS) was quite lucky in that the last Minister of Defence was an ex-naval officer who had served on hydrographic ships with

Commander Peter Barton, RN who was Chief Hydrographer of Fiji during the inception period of SWPHC. The Minister understood the importance of hydrography and was able to convince the Prime Minister that hydrography plays a major role in moving the economy forward. Climate change, sea level rise and inundation are major issues at international forums attended by Fiji and have resulted in assistance offered by China and Republic of Korea. Fiji was willing

On behalf of the IHO Secretariat and SWPHC, Mr Robert Ward congratulated Lieutenant Commander Rokoua for his endeavour in achieving so much for the FHS during this short period and setting a fine example in the region.

6.3 France

VAdm Frachon summarised France's report on its areas of hydrographic and charting activity in the SW Pacific (**SWPHC14-06c**). It had an EEZ area of 6.4 km², a coastline of 7,900 km and large lagoon areas. A significant part had not been surveyed to modern standards.

Surveys in New Caledonia are overseen by the Hydrographic Commission of New Caledonia in which various stake-holders are represented. There is a strong focus on blue economy with surveys carried out for shipping (nickel ore), cruise activity, coastal management and maritime surveillance.

In French Polynesia the survey scheme is validated by the Sub-committee for Hydrography of French Polynesia. The major stakes are internal sea liaisons, yachting, coastal zone management, de-confliction of uses of the maritime space, aquaculture. In addition to bathymetry surveys, sediment measurements and current measurements are also conducted in mooring areas, lagoon areas, aquaculture areas, etc. Work is also carried out relating to specifications, quality control and generation of products of Lidar surveys. In the next two years it is planned to emphasise on the development of about 50 new ENC's in the region.

The region has a tidal network comprising 16 tide gauges. Seven of these are included in the core network of Global Sea Level Observing System (GLOSS) and used for the Pacific Tsunami Warning System (PTWS). French Navy ships in the SWPHC region can provide support in case of an emergency in the event of a marine disaster. France also provides technical support and has a rapid response capacity for environmental data in case of a disaster.

SHOM continues to maintain and develop its MSDI system which includes real-time tide-gauge observations, latest results from Lidar surveys, information on charts, cables and maritime boundaries.

6.4 New Zealand (NZ)

Mr. Stuart Caie presented NZ's national report(**SWPHC14-06d**), stating that LINZ's strategy, particularly relevant to hydrography, is to increase use of geographic information and improve resilience to natural events. New Zealand, being the PCA for Cook Islands, Niue, Samoa, Tokelau and Tonga, had an extensive area of charting responsibility in the South Pacific and maintained a total of about 600 products. As is the case with many other HOs LINZ is also progressing from paper based products to an electronic environment. The NZHA has commenced a programme of work that will enable them to move to a digital first, data centric model of delivering products and services that meet the requirements of an MSDI. NZ Hydrography Risk Assessment has been completed, and is now used as a starting point for the national survey programme.

Pacific Regional Navigation Initiative (PRNI) – Through the MFAT NZ Aid Programme, LINZ in partnership with Secretariat of the Pacific Community (SPC) will provide targeted regional capacity building support to Cook Islands, Niue, Samoa, Tokelau and Tonga where NZ is the PCA. Bilateral Agreement between LINZ and Infrastructure Cook Islands concerning Cooperation in the Field of Hydrography' was signed this year, and similar work is planned for Tonga, Niue and Samoa.

The main challenges are:

- Small team with limited resources
- Staff retention (total of 15 of which half are recruited from abroad)
- Diversification from paper products to digital environment
- Requirement for high density port ENC's; responding to seismic events.

6.5 Papua New Guinea (PNG)

Mr Nick Pion summarised the national report for PNG (**SWPHC14-06e**). The IMO Audit conducted in September 2016 identified the need to improve on the communication and dissemination of information with regard to Notices to Mariners. NMSA was progressing this matter in consultation with Australia. PNG fulfilled most of the responsibilities listed under Phase 1 of the IHO Capacity Building Strategy, and is now working on establishing appropriate systems and processes to be able to sustain its activities. Installation and setup of GMDSS infrastructure was completed in September 2016, and operational trials were currently underway.

PNG submitted the proposal for Particularly Sensitive Sea Area (PSSA) in Jomard Passage to IMO in October 2016. This followed the IMO approval of two-way route at Jomard in 2015 and the release of large scale chart AUS 627.

A major project to be undertaken in 2017 is the ADB Maritime Waterways Project (MWSP) which would include the hydrographic survey of 6 areas and installation of additional 117 aids to navigation. As part of the MWSP, levelling work will also be carried at 4 existing tide gauges (Port Moresby, Lae, Alotau and Kimbe) to establish datum and bench marks.

Recognizing the limited staff under the hydrographic unit and related functions, the NMSA is in the process of creating additional positions to support hydrographic activities. The main challenge faced by NMSA is the lack of collaboration between stakeholder agencies with regard to coastal development projects. NMSA will continue to engage with stakeholders to better coordinate and share resources to promote safe navigation in ports and primary shipping lanes.

6.6 Tonga

Ms. Kelela Tonga presented the national report for Tonga (**SWPHC14-06f**), highlighting the following:

- His Majesty's Armed Forces (HMAF) - Tonga Navy is responsible for hydrographic surveys; Ministry of Infrastructure (MOI) for maritime safety information; LINZ is the PCA
- Bilateral Agreement (LINZ-Tonga) signed, as well as an MOU between HMAF and MOI agreed during LINZ visit to Tonga. These outlined an Agreed Plan for chart improvements and an Action Plan for future capacity building
- The National Hydrographic Coordination Committee (NHCC), re-established in 2015, held its first meeting on 25 Oct 2016
- - Plan to carry out surveys to update 4 of the 13 LINZ charts covering Tonga waters and also produce ENC's (part of PRNI Program)

Planned Activities (Projects)

- Pacific Regional Navigation Initiatives (PRNI) Program comprising 3 phases:
 - Replacing fathom charts with metric charts in metres and on WGS84 datum
 - New charts with new survey data
 - Updating existing charts for development projects and also to include existing infrastructure (aids to navigation, etc.) currently not shown
- Requested IALA for a Risk Assessment visit
- GMDSS system installation project planned by Ministry of Communication (funded by World Bank)
- New hydrographic survey ship (HMAF working in partnership with Australia)
- Development of Tonga Navy Hydrography Unit

Capacity Building

There is a requirement for training the staff at Cat A and Cat B levels.

One staff member attended the 5-week cartographic training course conducted by UKHO in Singapore in May 2016, and expected to attend the remaining part of the Cat B training at the

UKHO in early 2017.

Discussions have also been held with LINZ regarding MSI training and provision of on-the-job training for hydrographic surveyors.

Ms Kelela requested that invitations to two organisations (from Tonga) be sent for various IHO/Commission events. Mr Robert Ward clarified that, from the IHO Secretariat's perspective MOI is considered as the principal point of contact and the representative of hydrography into the IHO. MOI may then disperse the information, delegate part of its responsibilities, etc. to any other organisation/s of its choice. Within the IHO Yearbook, MOI will be listed as the principal point of contact and there is provision for including secondary organisations and providing them with information, copies of the documentation, etc.

6.7 United Kingdom (UK)

RAdm Tim Lowe presented the national report for United Kingdom (**SWPHC14-06g**). The UKHO is the PCA for 71 States in the world and much of the charting data required updating. RAdm Lowe provided a brief on the Commonwealth Marine Economies (CME) Programme – a three way partnership involving the UKHO, the Centre for Environment Fisheries and Aquaculture Science (CEFAS) and the National Oceanography Centre. The Programme looks at promoting the blue economies of Commonwealth Small Island Developing States (SIDS) within the Caribbean, Pacific and Indian Ocean regions.

The five year Programme will be in two phases, as follows:

Phase One: Working with Commonwealth SIDS to develop Maritime Economy Plans – i.e. navigational hydrography, habitat mapping, exploiting oceanographic resources.

Phase Two: Address the data and capability gaps identified in the Maritime Economy Plans.

The Programme will run for 1 year initially, with potential for further years.

The main focus of the pilot year activity has been to capture, as fully as possible, the current status of the blue economies of the SIDS in scope, and to develop Hydrographic Action Plans that can either be serviced by future years of the CME Programme or by other funding/CB activities. In the SW Pacific region, NHPs for Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu will be produced by Summer 2017. UKHO is also looking at the feasibility of conducting surveys in Kiribati and Vanuatu.

UKHO conducted a five-week course on chart awareness and data assessment in Singapore during May 2016. It is the first of the three modules which form the 15-week Category B course for Nautical Cartographers. A total of 4 participants from the SW Pacific region attended.

6.8 United States of America (USA)

Capt. Brian Connon provided an overview of the USA national report (**SWPHC14-06h**). NOAA is responsible for surveys in US waters; NGA had a global portfolio to support Defense and Naval Meteorology and Oceanography Command had the survey assets comprising 6 survey ships, survey teams and aircraft. Presently the footprint of ENC's in the SW Pacific region is small. A couple of ENC's for Palau will be released soon. Will be embarking on the task of converting Digital Nautical Charts (i.e. US-only chart format) to ENC's in 2018 and expect to complete by 2020-2021. Seabed 2030 Initiative and the importance of MSDI USA is an active participant in crowd-sourced bathymetry and satellite derived bathymetry projects that look into how such data can be used for charting purposes.

7. Reports by Associate Members and Observers

7.1 Cook Islands

Mr. Vaipo Mataora provided an overview of the Cook Islands national report (**SWPCHC14-07a**).

In April 2016 the IHO President (Mr Robert Ward) wrote to the Prime Minister regarding Cook Islands international obligations under the SOLAS Convention and improving hydrographic knowledge in the interests of national development and the blue economy. As a result the Cook Islands National Hydrographic Service (CINHS) and the National Hydrographic Coordinating Committee (CINHCC) were established on 6th September 2016. Membership of the Committee comprises:

Core Members - Infrastructure Cook Islands, Ministry of Transport and Cook Islands Port Authority.
Members – Tourism Cook Islands, Ministry of Foreign Affairs & Immigration, Ministry of Marine Resources Ministry of Police (Surveillance).

The CINHS and CINHCC appointed Mr Stephen Simpson as the MSI National Coordinator.

The Bilateral Agreement between the Infrastructure Cook Islands and LINZ concerning cooperation in hydrography was signed 14th October 2016.

The Cook Islands Ministry of Foreign Affairs and Immigration have approved the 'Data Release Agreement' for SPC to release data on behalf of the Cook Islands to support the Pacific Regional Navigation Initiative (PRNI) - 15th November 2016.

All members congratulated Cook Islands on the significant achievements and developments since the last SWPHC meeting.

7.2 Kiribati

Capt. Ruoikabuti Tioon summarised his nation's progress (**SWPHC14-07b**). The Marine Division within the Ministry of Information, Communications, Transport & Tourism Development (MICTTD) has the responsibility for hydrography and nautical charting, aids to navigation and MSI. Since independence in 1979 to 2015 there was a total of 3 staff in this Division. In March 2016 the IHO Secretary-General wrote to the Minister (MICTTD) regarding Kiribati's international obligations under the SOLAS Convention and the need to ensure appropriate hydrographic services and aids to navigation services. The letter proved effective and resulted in 3 additional staff being secured in 2016 and approval for another 5 positions in 2017. The new Marine Division structure would comprise 5 Units, i.e. MSI; SAR, Hydrography, Database and Aids To Navigation.

The UKHO is the PCA for Kiribati and published a total of 14 charts at varying scales in the 1950s and 1960s based on survey data obtained around 1943 and earlier. The only 'recent' chart is BA 731 (Gilbert Group) published in 1994. There are 3 international sea ports – Betio Port, Kiritimati Port and Tabuaeran. Based on the a recommendation in the IHO Technical Visit Report (2011) the Government is looking into developing Kanton as the main port of entry in the PIPA Group. A Chart Prioritisation Program has been developed. A New Edition of Betio Port Chart (BA 3269) was published in 2015 based on survey work carried out by the RAN in 2009 and SPC in 2015.

Capt. Ruoikabuti thanked SPC, UKHO, IALA, IHO, SWPHC and AHS for providing assistance to Kiribati on a number of projects. The work carried out included creation of additional posts in the Marine Division and a new Quality Management System. A Bill has been submitted to Parliament for the new Maritime Act.

CDRE Brace thanked Capt. Ruoikabuti on the very comprehensive report and the well articulated set of requirements for the way ahead. Mr Ward was pleased to note that the Republic of Kiribati was now putting in place a range of measures that will address the issues raised in the IHO Report.

7.3 Nauru

Mr Kemp Detenamo stated that Nauru did not have any port as such for vessels to come alongside, and relied on offshore mooring buoys for discharge of cargo onto barges. An ADB Project commenced in June 2016 to build a wharf which is considered necessary for development of the country. Provision of MSI services is not in place yet.

RAdm Lowe confirmed that Nauru is part of the CME Program. There is possibility of including some CB activity and UKHO could consider being the PCA for Nauru.

Mr Ward suggested that a technical assessment be done prior to the IHO writing a letter to the Government of Nauru illustrating the shortcomings of meeting obligations under SOLAS, benefits of hydrography, etc.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.05	7	Following the Technical Assessment Visit (by UKHO) and based on input from UKHO and Nauru IHO Secretary-General to write letter to Government of Nauru highlighting the recommendations	IHO Secretary-General	

7.4 Niue

Mr. Richard Siataga presented the report for Palau (**SWPHC14-07e**). LINZ was the PCA for Niue. LINZ carried out the IHO Technical Assessment Visit in February 2016 and subsequently in March 2016 undertook a Hydrographic Risk Assessment as part of the PRNI. The report was published in July 2016 and submitted to Parliament for approval.

The focus for the future is on the following:

- Establish National Hydrographic Authority and Coordinating Committee
- Formalise National MSI Coordinator
- Capacity Building – training for National MSI Coordinator
- Review draft bilateral agreement with PCA (LINZ)
- Request IALA AtoN assessment
- Draft Hydrographic Legislation with NZ/SPC assistance
- Request IHO Technical Implementation Visit
- Discuss survey programme with PCA (Beveridge reef – located within Niue EEZ, 236km east of Niue)

CDRE Brace encouraged nations wishing to have CB Implementation Visits to discuss with Mr Stuart Caie their requirements in order for a proposal to be formulated and submitted in time. Mr Alberto Costa Neves commented that requests for Technical Visits for consideration by the IHO Capacity Building Sub-Committee (CBSC) have to be submitted by 1 April 2017.

7.5 Samoa

Mr Mark Alesana provided a brief report for Samoa. One staff member from the Ministry of Works, Transport and Infrastructure attended the MSI Workshop in Wellington, New Zealand in August 2016. The IHO Technical Assessment Visit was carried out by LINZ (PCA for Samoa) in August 2016 and made some good recommendations. A Cabinet Submission has been made to establish a National Hydrographic Committee, and hopefully will be approved by end of 2016. A national coordinator for hydrographic matters is yet to be appointed. The Ministry of Natural Resources and Environment has completed a study under the ‘Strategic Programme for Climate Resilience’ to identify the most vulnerable areas to natural disasters.

The following are underway as part of the PRNI:

- Bilateral Arrangement with LINZ – draft being prepared
- Hydrography Risk Assessment to be conducted by LINZ in 2017
- Chart improvement – LINZ looking into improving quality and accuracy of existing charts using LIDAR data

Samoa’s future requirements include more technical training and support for formulating legislation on hydrographic matters. .

7.6 Solomon Islands

Mr Clifford Olisukulu presented his report (**SWPHC13-07g**) for the Solomon Islands. The Solomon

Islands hydrographic Unit (SIHU) is part of the Solomon Islands maritime Safety Administration (SIMSA). SIHU's activities include:

- Conducting two hydrographic surveys a year
- Assisting the Aids to Navigation (AtoN) Unit to coordinate positions of all existing and newly installed Navigational Aids to enhance SAFE NAVIGATION and updating of MSI in the areas
- Provide Chart Sales Service to the local shipping industry, foreign vessels entering SI waters
- Hydrographic Surveying & Charting Awareness to tertiary institutions, Government Agencies.

Large scale surveys of two areas (Noro Port & Ghizo Harbour) were carried out in 2015 and 2016, mainly to update existing nautical charts used by international shipping. New surveys associated with development projects are planned for 2017 – Suava Bay (International Wharf & Fisheries Project) and Wairokai Harbour (International Wharf and Palm Oil Project).

A staff member attended the MSI training in Wellington, NZ this year and is currently the National MSI Coordinator. UKHO is the current PCA for Solomon Islands, and discussions are ongoing with the Australian Hydrographic Service to take on this role. Solomon Islands has officially applied for IHO membership.

The website is expected to be up and running by first quarter 2017. SIMSA is undergoing organisational review by the ADB towards transformation into an Authority. The Government has assured that funding will be available for SIHU's services for the next 5 years. Continuous cooperation between SIHU and the national/international organisations is vital in continuing efforts in the field of hydrography

CDRE Brace complimented Mr Olisukulu for SIHU's achievements and his proactive approach to improving Solomon Islands hydrographic capability.

7.7 Vanuatu

Mr. Tony Tevi provided a summary of Vanuatu's report (**SWWPHC14-07i**). A Bill for the Maritime Sector Regulatory Act, submitted to the Parliament, included provision for effective hydrography services and compliance with international hydrographic obligations and procedure. As part of the Post Cyclone 'PAM' recovery effort program SPC carried out a Navigation Hazard Identification survey of the main port and approaches in Port Vila. During the year one person completed a Category 'B' Training Course in Hydrographic Surveying.

Holding a workshop in conjunction with the SWPHC meeting was practically very important, particularly in engaging the PICTs with their MSI focal points and PCAs. It is very likely that Vanuatu will become an IHO Member by the time the next SWPHC meeting is held.

Mr Tevi highlighted the need to coordinate the range of activities relating to different aspects of hydrography and support to the maritime community such as the CME Programme (UKHO), PRNI (NZ) and the SPC Strategy. The aim should be presenting to the Government a consistent message as part of the strategy, so that the Minister can understand and see how all these fit together.

7.8 New Caledonia

Commander Vincent Lamare stated that hydrographic activities in New Caledonia had been included as part of the France national report. The survey work was carried out by SHOM's survey team and equipment using a hydrographic vessel provided by New Caledonia. The Hydrographic Commission of New Caledonia meets twice a year to prioritize survey works to meet the civilian needs as well as that of the French Navy. SHOM is attempting to promote large LIDAR surveys in the New Caledonia waters to update and improve charting. Limited work was done due to budget constraints, and perhaps a regional approach should be considered.

7.9 Tuvalu

Mr. Taasi Pitoi presented the report for Tuvalu (**SWPHC 14-07h**). Being a very small country (approx. 26 km²), its current efforts are being focussed on attaining IHO CB Maturity Level 1 – i.e. establish hydrographic governance and basic MSI capability.

UKHO is the PCA and had recently withdrawn chart BA 766 due to lack of data. This has created a gap in the charting needs of mariners operating in and around Tuvalu. It is hoped that, with the provision of modern bathymetric data obtained under NZ MFAT PRNI, fit-for-purpose larger scale chart(s) of the outer islands will be reintroduced. All tide information required to support navigation is obtained by the tide tables produced by SPC (derived from the Australian operated sea level network tide gauges). One Marine Officer attended the MSI Training Course in Wellington, NZ in August 2016. Staff of the Department of Marine and Port Services also received Hydrographic Note compilation and refresher training during PRNI visits in May and November 2016. The PRNI visits have enabled greater visibility, at the national and international level, of the issues faced by Tuvalu in meeting its hydrographic obligations under SOLAS. Achievement of IHO CB Maturity Model Level 1 is still a way off but some progress has been made, particularly in the area of governance, which has benefited from a recent Maritime Institutional and Legislative review conducted as part of a NZ MFAT technical assistance project. The recent IHO Technical Assessment Visit, jointly conducted by a team from the UKHO and SPC, provided further exposure to shortcomings in current chart coverage and areas for future assistance.

8. Relevant International/Regional Organisations (Observers) Reports and Activities

8.1 SPC (Pacific Community)

Mr David Mundy provided an overview of the hydrographic related activities of the SPC Geoscience Division. A Hydrographic Unit comprising of two staff was established in 2014 and provides support to regional hydrographic programs and projects. It has limited capability to undertake hydrographic surveys, primarily to fill gaps. During this activity capacity building is also provided. Following the Tropical Cyclone ‘PAM’ a navigational hazard identification survey was carried out in Port Vila, Vanuatu during July-August 2016. The Ocean and Tides Knowledge Unit is currently involved with the maintenance of the tide gauges of Climate and Oceans Support Program in the Pacific (COSPPac), which is funded by the Australian Government. The Ocean and Coastal Section is also involved in a number of oceanographic-type applications – wave modelling, inundation, tsunami warning examples, etc. The SPC Geoscience Division in conjunction with Geoscience Australia has been assisting the Pacific countries in the area of Maritime Boundaries.

8.2 IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities)

Mr Omar Eriksson emphasised on a number of items contained in the IALA presentation given at the SWPHC Technical Workshop earlier in the week.

- The satellite AIS imagery depicting the volume of traffic in the Pacific Region in 2016, together with more detailed data, could be used in making risk assessments, i.e. tools are available to calculate frequency of collisions and groundings in an area. It was highly recommended that plans/strategies’ include the development of shore-based AIS coverage for the coastal areas so as to better understand the characteristics of traffic and regulate it.
- An ‘Assessment of Need’ study of 155 Coastal States globally identified 69 States that needed IALA guidance in order to meet its obligations under SOLAS Chapter V. Eleven of these were in the Pacific region, of which some had been visited and guidance provided. The remaining States would be visited in 2017/2018. All members to review IALA ‘Target States’ list on need of capacity building, and contact IALA if they identify any issue.
- Certification of competency to international standards in both AtoN and VTS is achieved via IALA Model courses delivered by more than 100 accredited training organisations world-wide. Four Pacific AtoN managers have already gained ‘Level 1’ certificates – Fiji (2), PNG (1), Solomon Islands (1). SPC is an accredited training organisation and plans to deliver courses commencing June 2017. PICTs are encouraged to identify persons for training, preferably younger staff. .

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
---------------------------	---------------------------	----------------	-----------	----------

14.06	8.2	All members to review IALA 'Target States' list on need of capacity building, and contact IALA if they identify any issue	All members	
-------	-----	---	-------------	--

8.3 GEBCO (General Bathymetry Chart of the Ocean)

Ms Shereen Sharma provided an interesting and comprehensive presentation on GEBCO outlining its organisational structure, the various bathymetric data sets and products, etc. The GEBCO Grid is a global terrain model at 30 arc-second intervals, based mainly on a database of ship-track soundings with interpolation between soundings guided by satellite-derived gravity data. It is accompanied by a Source Identifier grid showing which cells are based on soundings or existing grids and which are re-interpolated. However GEBCO's grids are meant for non-navigational purposes.

GEBCO attempts to fill in the data gaps in a number of ways, i.e.:

- Raising awareness of the 'data gaps' to encourage data collection in these regions
- Encouraging organizations to make their bathymetric data sets easily discoverable and accessible, either directly or by contributing data to the IHO Data Center for Digital Bathymetry (IHO-DCDB)
- Crowd-sourced bathymetry (CSB) initiatives, such as the IHO CSB Working Group
- Request shallow water bathymetry data extracted from ENC's from the Hydrographic community. (IHO Circular Letter 11/2016)

More than 85 per cent of the world ocean floor remains unmapped with modern mapping methods. At the Forum for Future Ocean Floor Mapping held in Monaco in June the Chairman of The Nippon Foundation, set forth an initiative to partner with GEBCO to cooperatively work towards mapping 100% of the World Ocean bathymetry by 2030. This project will seek to encourage the data collectors and data managers of governmental, academic and private interests to work together to improve the quality of publicly-available grids of the ocean floor. GEBCO 2030 goal is to have a 100m grid of the world.

Information about how to contribute data to help update GEBCO's global grid can be obtained from the link:

www.gebco.net/about_us/contributing_data/

Mr Robert Ward stated that GEBCO provides the global reference bathymetric dataset for almost everything other than charting. The IHO would like to enhance the value of this dataset and sought assistance of Member States and organisations to achieve this by contributing directly to the dataset and available for open access. If data is available but needs to be embargoed for security or sensitivity reasons, it is important to identify that data exists and individuals can negotiate directly with data owners 'to have some form of access. This will avoid duplication of effort in data collection, etc. The bulk of the GEBCO data sits in the IHO Data Centre for Digital Bathymetry (IHO-DCDB), from which the GEBCO Grid is derived. It is proposed to have the IHO-DCDB to be the prime data discovery portal for bathymetry from the coast to the deep ocean.

Mr Ward proposed that there be a mechanism in place to allow PCAs to forward a set of bathymetry derived from ENC's to GEBCO.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.07	8.3	All members, in consultation with their PCAs where applicable, consider providing shallow water bathymetry data from their ENC's to the GEBCO Project. (IHO CL 11/2016 refers)	All members	-

9. SWPHC International Charting Coordination Working Group (SWPHC ICCWG)

Commodore Brace provided an update of the Working Group activities since the last meeting. The WG’s report (**SWPHC14-09**) submitted by its Chair, Ms Hilary Thompson, was prepared in consultation with the other INT Chart authorities in the region, primarily the PCAs – i.e. Australia, France, New Zealand, UK and USA.

VAdm Bruno Frachon commented that France’s submission to SWPHC ICCWG had proposed a new INT chart for the waters around Wallis and Futuna, and as such would require approval by the Commission. Producer Nations (in SWPHC ICCWG) would review the proposal and advise the Chair.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.08	9	Producer Nations to review INT Chart proposal from France for Wallis and Futuna.	Producer Nations	End Feb 2017

10. Capacity Building

10.1 Activities under the IHO Capacity Building Work Program (CBWP)

On behalf of Mr. Adam Greenland (SWPHC Capacity Building Coordinator), Mr Stuart Caie provided updates on the capacity building activities and submissions to the IHO CBSC since the last SWPHC meeting.

The following IHO-funded CB activities were carried in the region since the last CBSC Meeting:

- (i) Vanuatu Technical Implementation Visit (2015 CBWP – A-01) led by UKHO
- (ii) Kiribati Technical Implementation Visit (2015 CBWP – A-02) led by UKHO
- (iii) Tides & Water Levels Technical Workshop, (2015 CBWP – P-06) held at AHO
- (iv) Samoa Technical Assessment & Advice Visit (2016 CBWP – A-01) led by LINZ
- (v) Tuvalu Technical Assessment & Advice Visit (2016 CBWP – A-03) led by UKHO
- (vi) Technical Workshop for PICTs in Formulating and Implementing Strategic Development Plans for Hydrography (2016 CBWP – P-08) led by LINZ
- (vii) MSI Regional Workshop held in Wellington, NZ (2016 CBWP – P-14) led by LINZ
- (viii) Niue Technical Visit to raise awareness of obligations under SOLAS V/9 – this was part of the PRNI Program.

Four projects were submitted to CBSC14 Meeting held in May 2016, and funding approved for the following two:

- (i) SW Pacific Region Industry Survey Project (2017 CBWP – P-09)
- (ii) MBES Training for Fiji Hydrographic Office (2017 CBWP – P-10)

10.2 Update on the Capacity Building Plan

Mr Stuart Caie stated that two activities that would be worth considering for submission to the next IHO CBSC meeting are:

- (i) Technical Workshop to be held in conjunction with next SWPHC Meeting – to build on the success of the last 2 workshops and formulating strategies for national hydrographic plans.
- (ii) MSI Training – to keep the momentum going with building capacity in this area.

Mr Simpson stated that the recent workshop preceding the meeting revealed that one of the issues faced by most of the participants was in the area of governance and development of

relevant legislation. This could be addressed by holding either a workshop or developing a generic document/template regarding rules/regulations, etc. suitable for the PICTs. Ms Francesca Pradelli (SPC) commented that it would be difficult to develop a common template that can be used by a number of countries. Mr Alberto Neves (IHO Secretariat) informed that the IHO publication C-16 “*National Hydrographic Regulations*” was a good source of reference for countries in the process of creating a National Hydrographic Office and/or National Hydrographic Committee.

Mr Neves added that CB submissions to the CBSC should not be limited to historical or expected contributions from Member States, but also depict all the needs of the country. This will provide the IHO Secretary-General an opportunity to lobby other donor agencies. In response to Ms Kaka’s inquiry, Mr Caie stated there would be opportunity for on-the-job training for hydrographic surveyors during the PRNI activity in Tonga. CDRE Brace reminded IHO Member States that they were eligible for Capacity Building Phases 2 & 3 and should consider other activities that are part of their national development plan.

Mr Caie stated that the deadline for submissions to the next (15th) CBSC Meeting was 1st April 2017. He suggested that all members consider and submit draft proposals to the Chair and CB Coordinator for review by 31st January 2017. PICTs were requested to work with their respective PCAs in developing the proposals. The Chair and CB coordinator would arrange for submission of the SWPHC CB proposals (for 2018) to the CBSC Chair and Secretary by 30th March 2017.

Noting that the next SWPHC Meeting will be held in about 18 months time, it was decided to have similar actions for the submissions to the subsequent (16th) CBSC Meeting.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.09	10	Develop draft CB submissions for consideration by CBSC15, and send to Chair and CB Coordinator for review. (PICTs to work with their respective PCA)	All	31 January 2017
14.10	10	Submission of SWPHC CB proposals for 2018 to the CBSC Chair and Secretary. (for consideration by CBSC15)	Chair & CB Coordinator	No later than 30 March 2017
14.11	10	Develop draft CB submissions for consideration by CBSC16, and send to Chair and CB Coordinator for review. (PICTs to work with their respective PCA)	All	31 January 2018
14.12	10	Submission of SWPHC CB proposals for 2019 to the CBSC Chair and Secretary. (for consideration by CBSC16)	Chair & CB Coordinator	No later than 30 March 2018

10.2 Capacity Building Initiatives

10.2a Proposed Safety of Navigation Strategy under development by SPC

Ms Francesca Pradelli’s presentation covered the ‘Draft Regional Strategy on Safety of Navigation in the Pacific’ (SWPHC14-10.2a). It is a guiding document for PICTs to coordinate all activities and efforts relating to safety of navigation, covering the five main components:

- (i) Safety of Navigation governance
- (ii) Navigation and meteorological services and warnings
- (iii) Hydrographic services
- (iv) Aids to Navigation and vessels traffic services
- (v) Search and Rescue services

The Regional Strategy has a timeframe of 5 years (2017-2021) and will be updated annually with ongoing

initiatives and targeted countries (all PICTS which members of SPC). An evaluation will be conducted at the end of the period to review and renew the strategy for the next 5 years. As the specialised agencies setting the standards for safety of navigation, IMO, IHO and IALA are the main partners supporting the implementation of the Strategy in the Pacific region. Other agencies and strategic partners include Australia, New Zealand, Principal Charting Authorities (PCAs), World Maritime Organization (WMO), Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM), International Mobile Satellite Organization (IMSO), NAVAREA/METAREA coordinators).

The Strategy would be discussed at the Transport Officials Meeting in Vanuatu in December 2016 and subsequently presented at the 3rd Pacific Regional Energy and Transport Ministers' Meeting in Tonga in April 2017.

10.2b Update on Pacific Regional Navigation Initiative (PRNI)

New Zealand gave a presentation on its aid programme in the region, i.e. 'Pacific Regional Navigation Initiative (PRNI)' (SWPHC14-10.2b) as follows:

Mr Trevor Larkin (Project Manager) provided a brief update on the project which is designed to meet objectives that are not directly related to production of a chart but rather social improvements. The 5-year project commenced in 2015 and has a total budget of NZ \$5M, involving funding arrangements with LINZ, being the PCA in the region, and SPC Geoscience Division which chose to utilise the funds to recruit a Category 'A' Hydrographic Surveyor for a 3 year period. It is focussed on countries for which NZ has a PCA responsibility (Cook Islands, Niue, Samoa, Tokelau, Tonga), with specific focus on Kiribati, Tuvalu and Vanuatu.

The Project outputs include Pacific-wide Data Discovery, Hydrographic Risk Assessments, Capacity Building, Mitigation Measures, and Partnerships. A project team has been set up involving LINZ, SPC and NZ MFAT and building up relationships with partner countries.

Other NZ maritime projects in the Pacific include the 'Pacific Maritime Safety Programme' currently in its second phase (2015-2018) and some of its outputs being relevant to navigational safety and PRNI outcomes, and the AtoN Infrastructure Projects.

Mr Stuart Caie (LINZ) provided an update on the PRNI outputs. Work associated with data discovery was carried out in the Cook Islands, Niue, Samoa and Tonga. Hydrographic risk assessments for Cook Islands and Tonga had been completed in the past. A 'Risk Model' for Niue has been created, based upon satellite-derived AIS traffic (July 2016). Data gathering work for Samoa Risk Assessment will be carried out in February 2017. LINZ, working in association with SPC, is involved in building capacity of the countries based on the IHO CB Strategy. A bilateral arrangement between LINZ and Infrastructure Cook Islands concerning cooperation in the field of hydrography was signed in October 2016.

Mr David Mundy (SPC) briefed on the SPC specific outputs as follows:

- Capacity Building

Country Visits to Kiribati: Initially in November 2015 as part of Joint PRNI/IHO Technical Implementation Visit, followed by Hydrographic Awareness / Basic Survey Training in May 2016.

Country Visits to Vanuatu: Initially in November 2015 as part of Joint PRNI/IHO Technical Implementation Visit, followed by Joint PRNI/UKHO/KFW for Follow-up and TC PAM scoping visit.

Country Visit to Tuvalu: Initially in May 2016 as part of Joint PRNI/PMSP Scoping Visit, followed by Joint PRNI/UKHO/IHO Technical Assessment Visit and MSI CB in November 2016

- Aids to Navigation

Create and maintain register of AtoN in collaboration with LINZ and IALA)

- Data Discovery

Collate and analyse bathymetry and related data.

- Data Release Agreements

Agreements with 8 out of 17 PRNIs achieved under PRNI; 2 agreements pending; formal proposals to be sent to remaining 7 PICTs after discussions at SWPHC14.

- Access and Monitoring Mechanism

Development of PRNI Portal

10.2c UKHO International Hydrographic Development Projects

Mr Samuel Harper (UKHO) gave a presentation on ‘UKHO International Hydrographic Development Projects’ (SWPHC14-10.2c), outlining the following:

Positioning Hydrography within the bigger picture

Hydrography is a keystone data type for so many activities. One example hydrography/bathymetry provides habitat mapping, which enables delimiting of Marine Protected Areas (MPAs). A MPAs programme forms part of ‘Fisheries Management’, which is important for proper managing of ‘Coastal Zoning’ exercises. All these fit within responsible ‘Oceans Governance’ which is essential when dealing with Climate Change. Similarly hydrography and bathymetric data enables ‘Inundation Mapping’, which is a key component of ‘Disaster Preparedness’. A knowledge of potential disasters and likely responses is useful for Coastal land use planning, which fits in the bigger picture of climate change resilience.

Commonwealth Marine Economies (CME) Programme

The Commonwealth Marine Economies (CME) Programme aims to support the sustainable growth of nineteen Commonwealth Small Island Developing States (SIDS) within the Caribbean, Pacific and Indian Ocean regions. The Pacific region SIDS include Nauru, Tuvalu, Fiji, Tonga, Samoa, PNG, Solomon Islands, Kiribati and Vanuatu. The Programme is being delivered on behalf of the UK Foreign and Commonwealth Office (FCO) by a partnership of world-leading UK government marine expertise, i.e. the UKHO, the Centre for Environment Aquaculture and Fisheries Science (CEFAS) and the National Oceanography Centre.

The Programme will run for 1 year initially, with potential for further years. The main focus of the pilot year activity has been to capture, as fully as possible, the current status of the blue economies of the SIDS in scope, and to develop hydrographic action plans that can either be serviced by future years of the CME programme or by other funding/CB activities.

There is also significant amount of capacity building component in the CME Programme, including two bursary places in the Category ‘B’ Cartography Training Course.

Overseas Territories Seabed Mapping Programme

This programme is funded by the central government to assess and redress the deficit of bathymetric data and lack of sound hydrographic governance in the UKs Overseas Territories (OTs). It is 4-year programme with approx. £1m allocated for Year 1, and approx. £6m for remaining 3 years. Year 1 activity is largely focused on technical assessments of all OTs, i.e. understanding their requirements. A Lidar Survey of Anguilla is also included.

Observations and Lessons Learnt

There is substantial amount of funding out there but we need to be creative to access it. We need to raise awareness of how hydrography fits into the bigger picture. The number of projects and programmes coming on line requires careful coordination. We need to review how we provide Technical Assistance.

11. Report on GMDSS, MSI and NAVAREA Coordination

11.1 NAVAREA X Report

Commodore Brett Brace referred to the ‘MSI Self Assessment Report – NAVAREA X’ (SWPHC14-11.1) submitted by Australian Maritime Safety Authority to the IHO WNWNS Sub-Committee Meeting held in September 2016. He provided an update on information regarding the AUSAID / DFAT project to establish a GMDSS capability in Papua New Guinea (PNG). Based upon information in Papua New Guinea’s national report, the installation of infrastructure was completed in September and currently undergoing trial. Following training of the operators, etc. PNG will seek approval, via the SafetyNET Panel, for the inclusion of Sub-Area ‘P’ (as part of NAVAREA X) to be initiated. This will improve capability for both navigational warnings and search and rescue purposes.

11.2 NAVAREA XIV Report

Mr Stuart Caie referred to the ‘MSI Self Assessment Report – NAVAREA XIV’ (SWPHC14-11.2)

submitted by New Zealand to the IHO WNWNS Sub-Committee Meeting held in September 2016. New Zealand hosted an MSI Training Course funded through the IHO Capacity Building Work Programme 2016. The training was led by New Zealand and attended by 17 participants from the Cook Islands, Fiji, French Polynesia, Kiribati, New Caledonia, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

Land Information New Zealand and the Ministry of Foreign Affairs & Trade (NZ Aid programme) are working together on the Pacific Regional Navigation Initiative (PRNI), a 5 year programme to improve maritime safety throughout the region. This project includes; hydrography risk assessments for Niue (completed), Samoa and Tokelau; capacity building to assist PICs reach Phase 1 of the IHO Capacity Building Strategy, in particular, the establishment of a National MSI Coordinator position.

12. Training and Technical Assistance

12.1 SPC Activities

Regional Hydrographic Activities conducted by SPC Geoscience Division

Mr David Mundy gave a presentation on the hydrographic related activities carried out in 2016 (**SWPHC14-08.1**). Following the Tropical Cyclone 'PAM' a navigation hazard identification survey was carried out in Port Vila, Vanuatu during July-August 2016. The results were compared with the survey carried out of this area in 2014 using the same technology, i.e. Multi-Beam (MBES). It also involved a number of local counterparts and hence provided an opportunity for capacity building. Three significant objects were identified - all in deep water and not dangerous to navigation. The results were communicated to the Government, Marine Department and HOs producing charts of the area.

SPC is also looking into engaging with UKHO (PCA for Palau) to investigate/improve the datum used in Tide Tables, taking into consideration the data from tide gauge network in the Pacific Sea Level Monitoring Project.

SPC is also involved in assisting PICT's maritime boundary aspirations in partnership with Geoscience Australia.

Regional Support in preparation for IMSAS

Ms Pradelli provided a presentation (**SWPHC14-12.1b**) on SPC assistance in the Pacific Region for the PICs preparation towards the IMO Member State Audit Scheme (IMSAS). IMSAS became mandatory on 1 January 2016. All IMO Member States will be audited over a 7-year period. SPC was providing assistance at the regional and national levels.

SPC conducted the first Regional Workshop on the Implementation of IMSA in Suva, Fiji on 21-25 September 2015, facilitated by IMO and the Australian Maritime Safety Agency (AMSA). It was attended by representatives from Cook Islands, Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tuvalu and Vanuatu.

The main objective was to provide PICs with a detailed overview of the areas that should be considered and addressed in the development of policies, legislation, associated rules and regulations and administrative procedures for the implementation and enforcement of flag, port and coastal states' obligations and responsibilities. As an important outcome, delegates identified a 19 STEPS roadmap that would facilitate their effective preparation for IMSAS.

SPC has been officially requested to further assist a number of PICs to complete some of the steps identified in the roadmap, i.e.

- (i) Guide in developing a Strategy to implement relevant IMO instruments
- (ii). Guide to develop a Maritime Transport Policy (MTP) which mentions about hydrography and needs for safety of navigation.

The Pacific transport Officials Meeting held in Suva, 24-27 November 2015 reiterated the need to prepare for IMSAS and endorsed SPC's Work Plan.

At the national level, SPC conducted IMSAS Awareness workshops in Kiribati, Tuvalu and Vanuatu during 2015/2016. These were attended by all maritime stakeholders and the main outcome was development of national roadmaps towards IMSAS. Upon official request, SPC assisted Kiribati, Palau and Vanuatu in developing their own national Strategies and MTPs. To date legal gap analysis in the scope of IMSAS has also been undertaken in Kiribati, Tuvalu and Vanuatu.

Members inquired about the selection criteria used by SPC in ensuring that the appropriate person from a PIC attends the workshop/training. Ms Pradelli stated that, as per protocol, SPC sends the invitations (for nominations) to Ministry of Foreign Affairs in the respective PICs. Mr Robert Ward commented that IHO faced a similar problem during the initial MSI courses conducted in the IHO CB Program, when inappropriate candidates were nominated to attend. There is now an increasing requirement for countries to provide proper justification stating why the candidate is being nominated also indicating how that person is going to be employed upon completion of the training. Furthermore the IHO keeps a student database to enable tracking of relevant details – e.g. courses attended, level of training, employment history, etc.

Safety of Navigation (AtoN) Project

Mr Minsu Jeon provided a presentation on the Pacific Safety of Navigation Project which aims to:

- (i) Identify current and future needs for safety of navigation systems, including AtoN procedure for governance and funding, and
- (ii) Support the enhancement of the capacity to establish, operate and maintain AtoN.

It is a two-phase project involving 13 target countries (Cook Islands, Kiribati, Federated States of Micronesia, Fiji, Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu). Phase I will be carried out during 2016-2018 and Phase II during 2018-2021.

The Project activities include legal, technical and economic assessments for the 13 target countries. SPC will be accredited the regional training organization in cooperation with IALA. It will deliver 'Level 1' AtoN Manager Course in 2017 and also facilitate 'Level 2' technical training courses.

12.2 International Board on Standards of Competency for Hydrographic Surveyors and Nautical Cartographers (IBSC) Update

Mr Ron Furness (Vice-Chair, IBSC) provided a brief update on the revision of standards (S-5 and S-8). Since its inception the Board had developed and published eleven editions of S-5 '*Standards of Competence for Hydrographic Surveyors*' and 3 editions of S-8 '*Standards of Competence for Nautical Cartographers*'. Over time the two documents had become complex for people preparing submissions, as well as for the Board to review these submissions. In 2012 the International Hydrographic Conference approved that the Board review the Standards. This task has almost been completed; S-5A and S-5B are available for download from the IHO website (www.iho.int) and Mr Furness encouraged members to use these for guidance when preparing short courses, especially the contents and learning outcomes.

The last IBSC Meeting was held in Brest, France, 4-15 April 2016, and the Board will hold its next meeting in Wellington, New Zealand on 20-31 March 2017.

13. Industry / Stakeholders Session (Expert Contributors)

The Chair thanked expert contributors for their support of the Commission. The presentations were as follows:

13.1 Fugro - 'Recent Surveys in the Region'

Mr. Hugh Parker spoke about the recent ALB surveys undertaken by Fugro in Samoa and French Polynesia for multi applications - hydrography, coastal zone management, tsunami modelling (SWPHC14-13.1b). The survey involved both high and low power sensors (i.e. LADS HD and Reigl) operating simultaneously and provided high resolution data in the shallow water and on land.

The French Polynesia survey was commissioned by the Government's Service de l'Urbanisme which needed to assess the vulnerability of land to climate change at a local level. Working with SHOM, Fugro developed a project to produce a seamless, precise topographic and bathymetric model utilising ALB technology to survey areas of interest in French Polynesia. Its uses are mainly:

- Hazard & Risk assessment for tsunamis, floods, landslides & earthquakes (creation of Prevention Plans for Natural Hazards)
- Improve nautical charting in the region for general shipping and tourism industries
- Other: planning for agriculture improvements, infrastructure upgrades, fisheries management ...

The Samoan survey was undertaken for the Ministry of Natural Resources & Environment and funded by the World Bank as part of increasing resilience to the effects of climate change. It identifies risks, understand exposure and better manage vulnerabilities and impacts on a national scale at high definition and accuracy. Useful data had been acquired for updating the chart.

13.2 Carnival Australia - 'Hydrography and the Influence on SW Pacific National Economies'

Mr Mke Drake's presentation (SWPHC14-13.4) highlighted the benefits of having hydrography as a national priority and provided examples of regional success stories over the years due to Hydrographic data being collected and charted in Papua New Guinea, Vanuatu and Solomon Islands. He emphasised the need to make Government aware of the importance of adequate marine infrastructure (including hydrography) and the flow on economic benefits. Funding is available from Aid Agencies as long as the request comes from Government.

13.3 Marico Marine - 'Hydrographic Risk Assessment Throughout New Zealand Waters'

Mrs Jennifer Roberts provided an enlightening presentation (SWPHC14-13.2) of the project which covered the whole of NZ waters and took 2-3 persons about a year to complete. The main conclusions were:

- Areas of Positive Charting Benefit have been successfully identified
- Areas have been identified where Charting Reorganisation will benefit navigation
- A number of Harbour Approach charts would benefit from changed scales or extents
- Sea bottom data in informal and designated anchorages is needed – IHO Swept standards for anchorage
- Harbour Limits not showing on all charts

Mr Stuart Caie stated that the results provide a starting point for LINZ discussions with Maritime Safety New Zealand to set the priorities for the long term survey programme.

Commodore Brett Brace commented that the methodology undertaken for the risk assessment study seems to be a robust process for a developed hydrographic authority to determine where it needs to focus the work, particularly under tightening resources.

13.4 IIC Technologies - 'Industry Participation in Regional Capacity Building'

Mr. Ron Furness presented an overview of IIC Technologies and the opportunities it provided in supporting capacity building (SWPHC14-13.3). He outlined IIC Technologies experience in various areas, as well as the training and education that IIC Academy provides. It has assisted a number of national hydrographic organisations in their capacity to meet the demands of mariners in producing multiple parallel charting products.

Industry had the capability and capacity to help in SWPHC and IHO's endeavours in the region.

14. Vote to select State that will occupy seat on the IHO Council allocated to SWPHC

The IHO Secretary-General had advised the SWPHC Chair that 1 seat on the IHO Council was allocated

to the Commission and 5 Member States (Australia, Fiji, New Zealand, Papua New Guinea and Tonga) were eligible to be considered for the selection; three Member States (France, United Kingdom and United States of America) had chosen to be considered in different Commissions. The election was conducted in accordance with the revised SWPHC Statutes adopted earlier in the meeting. (item 5 above refers)

Australia nominated to this position, i.e. occupy the seat (on the IHO Council) allocated to SWPHC. There were no other nominations and it was unanimously decided that Australia will occupy the seat allocated to the Commission for the next three years.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.13	14	Chair to advise IHO Secretariat that Australia had been selected to occupy the seat allocated to SWPHC.	Chair Australia	31 December 2016

15. Other Business

15.1 Seabed 2030 – Understanding the Shape of the Sea Floor

Captain Brian Connon provided a brief on United States of America (USA)’s proposal for coastal States in the SWPHC to provide bathymetric data, material and processing support to help the community meet the goals of the IHO-IOC GEBCO Seabed 2030 Project. (SWPHC14-15.a)

15.2 Response to Marine Disasters

Members discussed the proposal by Japan to the IHO Assembly to be held in April 2017 – i.e. to review Resolution 1/2005, as amended, ‘*IHO Response to Marine Disasters, and Contribution to Prevention and Alert Systems*’.

Vice Admiral Bruno Frachon stated his analysis of the proposal and suggested three main points for consideration:

- Preparation of response to marine disasters, including involvement of HOs in all work that can be done relating to warning systems, disaster mitigation, etc.
- Operational preparation of roles of HOs in marine disasters - i.e. be aware of the right channels of starting point of action, what is happening, what may be the need, what may be the technical analysis, assets available intervention, etc.
- Scientific and technical advice, especially for marine disasters linked to earthquakes and affecting geodetic references (vertical references, specifications, etc.).

Commodore Brett Brace provided a summary of the two recent SWPHC responses (under the current Resolution) to natural disasters caused by Severe Tropical Cyclones Pam (2015) and Winston (2016), which struck Vanuatu and Fiji, respectively. The Chair of SWPHC in close coordination with the IHO Secretariat monitored the impact of these disasters and undertook a coordinating role.

Members reviewed the proposal document and considered that parts of Resolution were very prescriptive and uses directive language, rather than providing overall guidance and some sort of an ‘aide memoire’. The nature of any response is also influenced by the capabilities of the region and affected countries and the prescriptive and directive language within the Resolution does not reflect the ability of most Regional Hydrographic Commissions to undertake/influence many of the activities stated in the Resolution. It was agreed that a more generic description would be appropriate.

Commodore Brace (Australia) undertook to provide the IHO Secretariat with SWPHC’s comments on the proposal.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.14	15.2	Australia to provide comments on Japan's proposal to IHO Assembly re Response to Disaster taking into consideration discussion at SWPHC14	Chair	15 December 2016

Captain Brian Connon emphasised on the need in having all members promulgating their MSI, as this information is essential – e.g. knowledge on the condition of a port in order to consider bringing in relief. There should be concerted effort by nations in the region to work with their NAVAREA Coordinators to promulgate this information. USA may be able to establish a disaster response portal using satellite imagery to allow exchange of information.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.15	15.2	USA to consider availability of satellite imagery portal for Disaster Response	USA	

15.3 Pacific Meteorological Council (PMC)

Mr Lloyd Tahani provided a brief on the PMC, a specialized subsidiary body of the Secretariat of the Pacific Regional Environment Programme (SPREP) established in July 2011 to facilitate and coordinate the scientific and technical programme and activities of the Regional Meteorological Services. Under Regulation 5 of SOLAS Chapter V, Contracting Governments are obliged to provide and promulgate meteorological information and warnings to shipping. There is significant work relating to marine weather being carried out by the national meteorological services in the region. PMC has created the Pacific Islands Marine and Ocean Services (PIMOS) Panel to serve as an advisory committee on marine and ocean services matters in the Pacific region. PMC would like to seek assistance from industry representatives by exploring the possibility of their support to PMC – e.g. reporting of conditions at sea. Mr Tahani invited SWPHC members to attend the PMC meeting to be held in Solomon Islands in 2017 and also to assist in drafting a working paper for this meeting. Commented that it was critical for SWPHC to understand its partnership with the meteorological services in the region, noting the considerable discussion on disaster response and also to understand how weather unfolds, etc.

16. Date and Venue of Next Meeting (SWPHC 15)

Three participants offered to host the next meeting (SWPHC15) in their respective countries – i.e. Kiribati (Captain Ruoikabuti Tioon), Niue (Ms Lynsey Talagi) and Tonga (Ms Kelela Tonga). Following a brief discussion amongst the three representatives of these nations, it was agreed that meeting be held in Kiribati in early March 2018.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.16	16	Kiribati to host SWPHC15 in early March 2018	Kiribati	

17. Election of Chair and Vice Chair

The Chair invited the Commission to consider nominations for the Chair and Vice Chair, taking into account Article 2 of the SWPHC Statutes.

UK (RAdm Tim Lowe) proposed that Australia to continue as Chair. As there were no other nominations, and Commodore Brace accepted UK's proposal, it was decided that Australia continue as the Chair.

Papua New Guinea (Mr Nicholas Pion) stated that it would like to step down as Vice Chair. UK proposed that Fiji be the Vice Chair. As there were no other nominations, and Lieutenant Commander Gerard Rokoua accepted UK's proposal, it was decided that Fiji be the Vice Chair.

SWPHC14 Action Item	SWPHC14 Agenda Item	SWPHC14 Action	Action by	Deadline
14.17	17	Australia elected as Chair and Fiji as Vice-Chair	Australia Fiji	

18. Approval of the Action List

The Action List was reviewed and approved. The complete list can be found in **Annex A** of these minutes.

19. Closing Remarks

The IHO Secretary-General (Mr Robert Ward) stated that he was pleased with the progress on hydrographic activities made by the countries in the region.

The Chair (Commodore Brace) thanked all participants for their valuable contribution and proactive discussions during the meeting and the workshop. On behalf of the Commission he also thanked the collective effort of the hosts (Government of Caledonia, SHOM and SPC) for the excellent facilities provided for the meeting and the hosting the receptions. The valuable input provided by the IHO Secretariat, IALA, SPC and industry (expert contributors) contributed greatly to the success of the meeting.

**14th South West Pacific Hydrographic Commission Meeting
30 November – 02 December 2016
Noumea, New Caledonia**

ACTION LIST

SWPHC14 Action Item	SWPHC14 Action Item	SWPHC14 Action	Action By	Deadline (Status)
14.01	4.1	All members to encourage regional States to join SWPHC as Associate Members.	Chair, All members	Ongoing
14.02	4.1	All non-Member States in the region to consider joining the IHO.	All non-Member States	Ongoing
14.03	4.1	All States to review the IHO Secretariat hydrographic capability assessment and provide comments to the Secretariat and SWPHC Chair.	All States	end February 2017
14.04	4.1	All States to review entries in IHO Publications C-55 and P-5 (Yearbook) and provide updates or confirmation to IHO Secretariat	All States	end February 2017 (completed)
14.05	6	Following the Technical Assessment Visit (by UKHO) and based on input from UKHO and Nauru IHO Secretary-General to write letter to Government of Nauru highlighting the recommendations.	IHO Secretary-General	
14.06	8.2	All members to review IALA 'Target States' list on need of capacity building, and contact IALA if they identify any issue.	All members	
14.07	8.3	All members, in consultation with their PCAs where applicable, consider providing shallow water bathymetry data from their ENC's to the GEBCO Project. (IHO CL 11/2016 refers)	All members	
14.08	9	Producer Nations to review INT Chart proposal from France for Wallis and Futuna.	Producer Nations	End Feb 2017 (completed)
14.09	10	Develop draft CB submissions for consideration by CBSC15, are sent to the Chair and the CB Coordinator for review. (PICTs to work with their respective PCA)	All	31 January 2017 (completed)
14.10	10	Submission of SWPHC CB proposals for 2018 to the CBSC Chair and Secretary. (for consideration by CBSC15)	Chair & CB Coordinator	No later than 30 March 2017 (completed)
14.11	10	Develop draft CB submissions for consideration by CBSC16, are sent to the Chair and the CB Coordinator for review. (PICTs to work with their respective PCA)	PCAs & MS	31 January 2018 (in progress)

14.12	10	Submission of SWPHC CB proposals for 2019 to the CBSC Chair and Secretary. (for consideration by CBSC16)	Chair & CB Coordinator	No later than 30 March 2018
14.13	14	Chair to advise IHO secretariat that Australia had been selected to occupy the seat allocated to SWPHC.	Chair, Australia	31 December 2016 (completed)
14.14	15.2	Australia to provide comments on Japan's proposal to IHO Assembly re Response to Disaster taking into consideration discussion at SWPHC14.	Australia	15 December 2016 (completed)
14.15	15.2	USA to consider availability of satellite imagery portal for Disaster Response.	USA	
14.16	16	Kiribati to host SWPHC15 in early March 2018.	Kiribati	
14.17	17	Australia elected as Chair and Fiji as Vice-Chair	Australia, Fiji	