

15th South West Pacific Hydrographic Commission Meeting (SWPHC15)
21-22 February 2018 – Nadi, Fiji
Draft Minutes

1. Opening

1.1 Opening Remarks by the Chair

The SWPHC Chair and Hydrographer of Australia, Commodore Fiona Freeman, welcomed all the delegates to the 15th SWPHC Meeting and thanked the Fiji Hydrographic Office for their effort in hosting the SWPHC Technical Workshop and SWPHC15 Meeting at such a short notice. She emphasised the importance of the deliberations over the next two days in sharing of information and experiences, as well as networking among the participants.

1.2 Address by the IHO

Mr Abri Kampfer (Director IHO) outlined the aims of the SWPHC and added that the discussion items during the meeting would be pertinent to the region and in support of the aims and new developments in the IHO. He was pleased to note that most of the regional beneficiaries of a MSI service and an INT Charting service were attending the meeting and this was the ideal opportunity to have an interaction on service delivery and information sharing.

Mr Kampfer expressed his sincerest appreciation to Fiji for hosting this conference, as it is not an easy task to arrange a conference of this nature at the very last moment. He thanked the Fiji Hydrographic Office (Captain Humphrey Tawake and his team), Land information New Zealand (Mr Adam Greenland and Ms Deborah Frost) and the Australian Hydrographic Office (Commodore Fiona Freeman and Mr Jasbir Randhawa) for all the extra effort over the last few days in enabling the meeting venue to be moved from Tonga to Fiji.

1.4 Administrative Arrangements

Lieutenant Commander Saula Tuilevuka (Fiji) provided the meeting participants with the required housekeeping details.

The Chair noted that the meeting was well represented in spite of the last minute organisation, redirection of travel, etc. She invited all delegates to introduce themselves.

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 *SWPHC15-01B Rev 2* on the IHO website (www.iho.int)

2. Agenda and Timetable approval

The Chair introduced the Draft Agenda and Timetable (*doc. SWPHC15-02 Rev. 2*). Members were invited to comment and adopt the documents. Mr John Lowell (USA) proposed that the paper *'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'* be included in the agenda.. The Chair agreed that it be discussed under Item 9.3 (GEBCO). Having no other points, the meeting adopted the draft agenda and timetable with inclusion of this additional item.

Decision 1: The agenda and timetable were adopted (*doc. SWPHC15-02 Rev. 2*).

3. Approval of Minutes of SWPHC14 Meeting

The Secretary informed that the SWPHC14 draft minutes had been circulated to the participants. Comments were received in respect of the following editorials:

2nd paragraph in Item 10.2 (page 15)

- in the sentence “In response to Ms Kaka’s inquiry, ...” replace “Kaka’s” with “Kelela Tonga’s”
As there were no further comments the Commission approved the SWPHC14 minutes with the above editorial corrections. (*doc. SWPHC15-03*)

Decision 2: The revised Minutes of the SWPHC14 were approved (*doc. SWPHC15-03*).

4. Matters arising from Minutes of SWPHC14 Meeting

The Secretary and action owners provided updates on the status of the List of Actions from SWPHC14 (*doc. SWPHC15-04*) as indicated below.

SWPHC 14 Action No.	SWPHC 14 Agenda Item	Action	Action By	Status
14.01	4.1	All members to encourage regional States to join SWPHC as Associate Members.	Chair, All members	Ongoing Chair to liaise with IALA and SPC to encourage coastal States that are not yet Members to join the SWPHC
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	Ongoing. (PCAs and States to work closely together)
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	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	Technical Assessment Visit rescheduled to June-July 2018
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	Currently 5 ‘target States’ remain (compared to 12 in 2016)
14.07	8.3	All members, in consultation with their PCAs where applicable, consider providing shallow water bathymetry data from their ENCs to the GEBCO Project. (IHO CL 11/2016 refers)	All members	No new information received since last meeting. Discussed under Agenda Item 5 (IHO Matters)
14.08	9	Producer Nations to review INT Chart proposal from France for Wallis and Futuna.	Producer Nations	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	Completed
14.10	10	Submission of SWPHC CB proposals for 2018 to the CBSC Chair and Secretary. (for consideration by CBSC15)	Chair & CB Coordinator	Completed
14.11	10	Develop draft CB submissions for	PCAs & MS	Discussed under Agenda Item

		consideration by CBSC16, are sent to the Chair and the CB Coordinator for review. (PICTs to work with respective PCA)		10.3 (Future Capacity Building Initiatives)
14.12	10	Submission of SWPHC CB proposals for 2019 to the CBSC Chair and Secretary. (for consideration by CBSC16)	Chair & CB Coordinator	Discussed under Agenda Item 10.3 (Future Capacity Building Initiatives)
14.13	14	Chair to advise IHO secretariat that Australia had been selected to occupy the seat allocated to SWPHC.	Chair, Australia	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	Completed
14.15	15.2	USA to consider availability of satellite imagery portal for Disaster Response.	USA	USA (NGA) started portal and made it available over US territory. Not done internationally as yet. Members decided to include ' Response to Disasters ' as a standing agenda item

Action 1: Chair to liaise with IALA and SPC to encourage coastal States that are not yet Members to join the SWPHC (permanent).

Decision 3: to include 'Response to Disasters' as a standing agenda item for SWPHC conferences.

5. IHO Matters

5.1 IHO Secretariat Report

Mr. Abri Kampfer (IHO Director) provided the IHO Secretariat Report (*SWPHC15-05.1*) to the meeting, highlighting the activities that may impact the work of the SWPHC. These included:

Entry into force of the Amendments to the IHO Convention and its supporting Basic Documents

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:

- the term International Hydrographic Bureau (IHB) is replaced by the term IHO Secretariat
- the Directing Committee, comprising a President and two Directors ceases to lead the IHB (Secretariat of the IHO). Instead, the Secretariat of the IHO is now led by a Secretary-General assisted by two subordinate Directors;
- 3-yearly Assembly cycle instead of the previously 5-yearly Conference cycle
- IHO Council established during A-1 and will meet annually
- 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. A minimum number of at least one-third of all Member States eligible to vote must vote positively for a vote to stand.

5.2 Outcome of the 1st Session of the IHO Assembly

The first session of the IHO Assembly (A-1) was held in Monaco from 24 to 28 April 2017, at which time the IHO Council was established and decisions were agreed. The Assembly elected Dr Mathias Jonas as the Secretary-General and Mr Abri Kampfer and Mr Mustafa Iptes as Directors, who took office on 1 September 2017. The second session of the IHO Assembly (A-2) will be held in April 2020.

5.3 Outcome of the 1st Meeting of the IHO Council (C1)

Mr Kampfer reported as follows:

The 1st Meeting of the IHO Council (C1) was held in Monaco on 17-19 October 2017. The IHO Committees (IRCC and HSSC) and IHO Secretariat reported on the IHO Work Programme progress. The Council endorsed the key priorities in the IHO 2018 Work Programme and Budget. Amendments to IHO Resolutions were endorsed. Proposals will be considered by the Council before being presented to all Member States for voting. Resolution about the methodology and timetable to deal with financial statements endorsed. Revised publications were endorsed.

Two important outcomes of C-1 were:

(1) Established a Strategic Plan Review Working Group (SPRWG) with Mr Bruno Frachon (France) as Chair.

(2) Established a full-time CB Assistant at the IHO Secretariat by re-arranging other positions. Next meeting will take place in London, UK (9-11 October 2018).

Rear Admiral Shepard Smith (USA), also current Chair of the IHO Council, highlighted that the Council, being a new body, wants to ensure that it does not disempower any of the well-functioning parts of the IHO. As such one of its first actions was to clarify the relationship between the Council and the IRCC and HSSC so as to avoid adding another layer of decision-making in the process. The Council's effort was focussed on strategic level longer range issues, thinking ahead to prepare for the next Assembly (in 2020).

Rear Admiral Tim Lowe (UK) proposed that SWPHC conferences include 'Preparation for the IHO Council' as a standing agenda item for the SWPHC conferences. This would enable discussion on any issues that the region would wish to be raised at the Council meeting. Members noted that the proposal had merit and agreed to it.

5.4 SWPHC Report to IRCC9

The Chair provided a summary of the SWPHC Report submitted to the 9th Meeting of the Inter-Regional Coordination Committee (IRCC9) held in Paramaribo, Suriname in June 2017 (*doc. SWPHC15-05.4*). It included:

- **IHO CB Activities** completed since IRCC8 - Technical Implementation Visits to Samoa and Tuvalu; Technical Workshop for PICTs; MSI Regional Workshop.
- **Major Support Activities in the region:**
 - Commonwealth Marine Economies (CME) Programme
CME Programme aims to support the sustainable growth of Commonwealth Small Island Developing States (SIDS) within the Caribbean, Pacific and Indian Ocean regions. SWPHC SIDS are therefore 'in scope' for CME activities.
 - NZ Pacific Regional Navigation Initiative (PRNI)
Budget of NZ\$5 million over 5 years. Involves Risk Assessments, CB to achieve Phase 1, establish MSI coordinators.
 - PNG Maritime and Waterways Safety Project
ADB helping PNG enhance maritime safety and efficiency. The project will upgrade the country's navigational aids network, make maritime safety information more readily available, and help develop maritime safety communities of practice.
- **Achievements**
 - All PICTs have made progress on hydrographic activities – Fiji, PNG, Solomon Islands, Tonga and Vanuatu have made significant progress
 - 3rd Pacific Regional Energy and Transport Ministers in Tonga in April 2017 endorsed the Regional Strategy on Safety of Navigation in the Pacific
 - Vanuatu established the Office of the Marine Regulator and became an IHO Member in 2017
 - NZ Risk Assessment – Cook Islands, NZ, Niue, Tonga, Vanuatu
 - NZ PRNI – Risk Assessments, CB to achieve Phase 1, establish MSI coordinator
 - Cook Islands signed a bilateral agreement with NZ and approved establishment of a Hydrographic Service
 - Tonga and NZ progressing a bilateral agreement

- Australia working with UK for Australia to become PCA for Solomon Islands in August 2017
- US engaging with Palau for a Technical Visit
- Nauru engaging with UKHO for charting support/PCA activities

5.5 Strategic Plan Review Working Group (SPRWG) Report

VAdm Bruno Frachon provided a brief background about the IHO Strategic Plan (decided by IHO Resolution 12/2002) and the IHO 1st Assembly's decision in tasking the IHO Council to conduct a comprehensive review of the Plan and provide a draft revised Plan to the 2nd Assembly (2020). Following the Council Meeting in October 2017, approval of the SPRWG's ToR and RoP, membership, etc. was sought through IHO CLs 66/2017 and 20/2018. (*doc. SWPHC15-05.1 refers*) Based on discussions and input received, the WG would take into consideration the following in developing the revised Strategic Plan (SP):

- Stakeholders' views, SPs of other international organisations (IMO, IOC, etc.)
- Discussion on how the SP is articulated with the IHO Work Programme
- Better focus on outputs and delivery (what and how)
- Defining the priorities of the IHO
- Technology aspects, standards, Education of End-users, Capacity Building
- Communication – how to have better communication

The Chair thanked Vice Admiral Frachon for the presentation on the substantial and significant amount of work being undertaken. She encouraged SWPHC members who had any contribution for this task to engage with members of the SPWRG.

5.6 Other Reports

The Chair stated that the remaining reports dealt mainly on technical matters of the other committees, i.e. HSSC, WENDWG and MSDIWG. She invited representatives from each Committee/WG to highlight the relevant points applicable to this region and outcomes from those meetings.

5.6.1 Hydrographic Services and Standards Committee (HSSC) Report

Mr Kampfner (HSSC Secretary) stated that HSSC9 Meeting was held in Ottawa, Canada on 6-10 November 2017. The most significant item from IHO Assembly 1 affecting HSSC was the task of adding an annex to IHO Resolution 2/2007 – Principles and Procedures for Making Changes to IHO Technical Standards and Specifications. The Council endorsed this task and HSSC was therefore invited to consider its Terms of Reference (TORs) in parallel to the revision of IHO Resolution 2/2007, and to submit further amendments for endorsement at the 3rd meeting of the Council for approval at A-2.

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

The HSSC agreed on the following relating to its Working Groups:

- The Data Quality Working Group (DQWG) to pursue its activities and new Terms of Reference were adopted. It would aim to ensure that data quality aspects are addressed in an appropriate and harmonized way for all S-100 based Product Specifications.
- The ENC Standards Maintenance Working Group (ENCWG) was tasked to identify the current limitations of S-57, and ENC producers will be invited to include more contour lines in their ENCs as appropriate. Various concerns were raised by INTERTANKO in its report - one of the deficiencies of ENCs was the lack of more detailed bathymetry, un-assessed CATZOC, etc. which they required for safety operations of under-keel clearance.
- The Hydrographic Surveys Project Team (HSPT) had identified a number of limitations in the current version of S-44 – IHO Standards for Hydrographic Surveys - and a questionnaire had been produced which was intended to gauge the views of users and stakeholders. HSPT

was encouraged to pursue its work under the proposed course of actions which includes the development of a matrix approach for the next Edition of S-44. The submission of Ed. 6 of S-44 for endorsement by HSSC is targeted in 2019-20.

The HSSC endorsed the continuation of its other working groups and approved their work plans. Member States are invited to consider participating in the working groups in which they are not yet involved. Captain Luigi Sinapi (Italy) and Mr Michael Prince (Australia) were elected as Chair and Vice-Chair of the HSSC respectively for the period of 2017 to 2020.

5.6.2 Worldwide ENC Database Working Group (WENDWG)

Mr Jamie McMichael-Phillips (WENDWG Chair) stated that WENDWG had met annually since its first meeting in Wollongong in 2011. The last meeting was held in Washington, USA in February 2017, and the WENDWG8 will be held in Buenos Aires in on 20-22 March 2018. The WG had been quite productive - looking at coverage, managing gaps in coverage and looking into managing overlaps, which are in some cases more critical than gaps. WENDWG considers that ENC coverage is as satisfactory as the existing paper chart coverage at the time when IMO made ECDIS carriage mandatory. There are still large areas, particularly within the SW Pacific, where there are gaps. These need to fill in these gaps is becoming more and more critical as the shipping traffic in the area increases.

The WG is looking into improving the ENC Catalogue and also the harmonisation of the two regional ENC distribution centres – PRIMAR and IC-ENC. Other areas to be considered in the future include better harmonisation of the work of the RENCs, to improve and increase the implementation of risk assessment methodologies to identify priority areas requiring charting and ENC coverage.

Encourage all members to look into areas where ENC coverage is considered to be inadequate and highlight it to the regional WEND co-ordinator (Australia) and also to WENDWG.

5.6.3 Marine Spatial Data Infrastructures Working Group (MSDIWG)

Mr John Lowell (USA) stated that MSDIWG was making good progress - having finalised IHO publication C-17 (Spatial Data infrastructures: “The Marine Dimension” - Guidance for Hydrographic Offices). The WG plans to establish a project with the Open Geospatial Consortium (OGC) to conduct a concept development study to define the future of MSDI. The proposal, to be funded partially by USA, will be conducted in two phases. Initial phase covering a period of about a year will involve 2 workshops to understand where the global community is in regard to marine spatial information. Based on the outcome of this study the project may enter into a second phase which will be a Pilot Project. All SWPHC members were encouraged to be involved in this project.

The meeting considered the key elements of the various presentations and discussions under Agenda Item 5 and agreed on the following:

Action 2: Members to consider:

- a) providing report and inputs to the WENDWG, prior to the 8th meeting in March;
- b) providing CATZOC practices to the DQWG;
- c) following the policy on the use of CATZOC values by the IHO Secretariat;
- d) maintaining ENC Schemes when the INTToGIS Phase II is commissioned;
- e) keeping to the IHO Secretariat informed of the existence of their bilateral agreements if they act as primary charting authorities on behalf of small island States (deadline: SWPHC16).

Action 3: coastal States to consider:

- a) providing the regional NAVAREA Coordinators with regular flow of MSI;
- b) maintaining regular communication with the regional NAVAREA Coordinators and inform of any change of personnel or contact details;
- c) using and following the guidance provided in S-53 – Joint IMO/IHO/WMO Manual on Maritime Safety Information (permanent).

Action 4: Chair to request the regional NAVAREA Coordinators to provide a clear indication on the

state of the provision of MSI for each coastal State in the region (permanent).

Action 5: coastal States to check consistency of the information published in the IMO GMDSS Master Plan and that published by the IHO in C-55 (deadline: SWPHC16).

Action 6: Members to consider investing in the preparation of candidates for the Category "A" hydrography programme (deadline: January 2019).

Action 7: Members to consider applying for the Category "B" cartography programme (deadline 30 March 2018).

Action 8: coastal States to consider submitting papers for publication in the International Hydrographic Review (permanent).

Decision 4: to include 'Preparation for the IHO Council' as a standing agenda item for the SWPHC conferences.

Decision 5: to note the reports under agenda item 5 (*docs. SWPHC15-05.1, SWPHC15-05.4 and SWPHC15-05.5*)

5.7 Actions arising from IRCC9

The meeting reviewed the actions arising from IRCC9 (https://www.iho.int/mtg_docs/com_wg/IRCC/IRCC10/IRCC10-03A-Minutes-IRCC9.pdf) which were relevant to the SWPHC and agreed on the following:

Action 9: Members to identify potential instructors to accompany MSI trainings in order to become MSI trainers and report back to IRCC (Ref. Action IRCC9/2) (deadline: IRCC10).

Action 10: Members to consider using Trainer for Trainers (TFT) and e-learning methods to support the development of CB Phase 1 for developing coastal States and report back to IRCC (Ref. Action IRCC9/3) (deadline: IRCC10).

Action 11: coastal States to attend WWNWS-SC meetings, to use the Joint Manual on MSI to ensure correct terminology and formats are used in MSI messages, to engage their National MSI Coordinators with the relevant NAVAREA Coordinator(s) and report back to IRCC (Ref. Action IRCC9/4) (deadline: IRCC10).

Action 12: CB Coordinator to work in coordination with the NAVAREA Coordinators in planning and student selection for the CB MSI training courses (Ref. Action IRCC9/5) (deadline: IRCC10).

Action 13: Members to investigate the possibilities of fund raising and engagement in CB via national organizations and report back to the IRCC (Ref. Action IRCC9/10) (deadline: IRCC10).

Action 14: Members to consider making all ENC data available through the RENCs (Ref. Action IRCC9/14) (permanent).

Action 15: ICCWG to develop and maintain a SWPHC ENC scheme (Ref. Action IRCC9/15) (permanent).

Action 16: Members to consider nominating SWPHC MSDI Ambassadors to promote MSDI and to help Member States to prepare the national reports with respect to the status of MSDI (Ref. Action IRCC9/18) (deadline: IRCC10).

Action 17: coastal States to consider releasing datasets or subsets into the public domain via the IHO DCDB (Ref. Action IRCC9/21) (permanent).

Action 18: Chair to request to the IRCC to consider a mechanism to track national status relating to CSB to consider reviewing data gathering restrictions within their maritime areas of jurisdiction to enable CSB activities to be undertaken (Ref. Action IRCC9/22) (deadline: IRCC10).

Action 19: Members to consider supporting the CSB initiative with positive actions, such as requiring all research vessels collect bathymetric data for late uploading, when on passage or when it does not

interfere with other research activities (Ref. Action IRCC9/23) (permanent).

Action 20: Members to consider contributing of bathymetric data in shallower coastal areas to GEBCO in order to support the production of higher resolution gridded data products and report back to IRCC (Ref. Action IRCC9/29) (deadline: IRCC10).

Action 21: Members to consider using satellite derived bathymetry and risk assessment methodologies in particular in uncharted or poorly charted areas as a way of developing survey priority areas as part of attracting donor funding and report back to IRCC (Ref. Action IRCC9/32 and 33) (deadline: IRCC10).

Action 22: Members to consider participating in the workshop on satellite derived bathymetry sponsored by Canada in Ottawa in September 2018 (Ref. Action IRCC9/34) (deadline: September 2018).

Action 23: Members to consider providing technical resources to the DQWG and report back to IRCC (Ref. Action IRCC9/35) (deadline: IRCC10).

Action 24: Members to note the list of events organized by other inter-governmental and stakeholders indicated in doc. IRCC9-09B, consider how the IHO might be represented in those events that are considered relevant and liaise with the IHO Secretariat for the appropriate and report back to IRCC (Ref. Action IRCC9/36) (deadline: IRCC10).

Action 25: Members to promote the UN-GGIM in their countries and identify the national representatives in the UN-GGIM and coordinate the maritime activities (Ref. Action IRCC9/39) (permanent).

Action 26: coastal States to review entries related to their region in IHO C-55 and P-5 (Yearbook) at least annually (Ref. Action IRCC9/44) (permanent).

6. Membership and Statutes

6.1 Members reviewed the Statutes revised at SWPHC14 Meeting (*doc. SWPHC15-06.2*) and approved some minor editorials, as follows:

- (i) In 1(a) - to delete “(formerly Administrative Resolution T1.3)”
- (ii) In 1(b) - to delete “Secretariat of the”
- (iii) In 3(b) - to replace “International Hydrographic Secretariat” with “IHO Secretariat”
- (iv) In 3(c) - to replace “IHB” with “IHO Secretariat”
- (v) In 3(f) - to add (GMDSS) at end of the sentence
- (vi) In 7(c) - replace “IHB” with “IHO Secretariat”
- (vii) In 13 - to replace “IHB” with “IHO Secretariat”

Decision 6: to approve editorial revision of the SWPHC Statutes

6.2 The meeting noted that Vanuatu became an IHO Member in 2017 and accordingly was eligible to become a Full Member of the SWPHC. This formality was completed by Mr Henry Worek signing the Statutes.

Decision 7: to accept Vanuatu as a Full Member of the SWPHC.

6.3 The meeting considered Indonesia’s proposal to join the SWPHC and noted that this would benefit the Commission in capacity building activities, harmonizing ENC products, etc. Members agreed to accept Indonesia as an Associate Member of the SWPHC and accordingly Rear Admiral Harjo Susmoro signed the Statutes.

Decision 8: to accept Indonesia as an Associate Member of the SWPHC

6.4 Members discussed whether there was a need to have the Chair and Vice Chair elected for 3-year term. Director Kampfer commented that for Regional Commissions to function properly the Chair

should be well resourced and this ought to be an important consideration. The Chair stated that the SWPHC had been functioning successfully with the selection of the Chair and Vice-Chair at each meeting, and there is provision for the incumbent Chair to be re-elected at the next meeting. The meeting agreed that the current procedure suits the Commission best and there was no need to amend the Statutes on this aspect.

7. National Reports

7.1 Australia

CDRE Fiona Freeman provided a summary of Australia's national report (*doc. SWPHC15-07A*) as follows:

The Australian Hydrographic Office (AHO) merged with the Australian Geospatial-Intelligence Organisation (AGO) effective from 31 Oct 2017. The AHO becoming a part of AGO will not impact the roles and functions of the AHO, in fact significant improvements are being made. The Defence White Paper 2016 indicated the future of Australia's hydrographic surveying capabilities will be an efficient combination of commercial and military 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. The nature and scope of this mix is now better understood and is being progressed through a Defence project (SEA2400). A key outcome of this project is the emergence of the HydroScheme Industry Partnership Program (HIPP).

Survey activities were carried out along various parts of the Australian coast, mainly in Tasmania, South Australia and the Great Barrier Reef area. Under the MOU with Papua New Guinea, surveys were conducted in Cape Nelson in early 2017 and around Port Moresby in late 2017.

The AHO has engaged with Commonwealth Scientific and Industrial Research Organisation ship 'Research Vessel Investigator' to undertake survey and science missions in waters around Australia. Improvements in understanding regional ocean currents will lead to better coastal modelling in the region. In addition the AHO continues to participate in the ARGO project with annual purchase of 5 floats, some of which are deployed by Royal Australian Navy vessels outside major shipping lanes.

After 20 years of outsourcing all paper charts repromats and corresponding metadata are now being managed in-house using Caris PCE (including NtoM updates, POD and Geotiff generation). As part of the AHO initiative to support the production of high density bathymetric ENC's, 6 AU6 cells (cairns and Townsville ports) were produced and published in 2017 as proof of concept.

In August 2017 Australia became the PCA for the Solomon Islands. This has added 14 paper charts, 41 ENC's and 2 Index Charts to the AHO Chart Portfolio.

The last H2 (Category B) course conducted at the RAN Hydrographic School concluded in November 2017. There were 15 trainees - 10 Australian (RAN), three New Zealand (RNZN) one Indian Navy and one Fijian Defence Force.

The next H2 Course will be run 13 June 2018 to 8 November 2018, it is anticipated that this Course will again be fully subscribed with 15 trainees. At present positions have been reserved for three RAN officers, three positions for the RNZN, one Japanese Maritime Self Defence Force officer, one Royal Malaysian Navy officer, one Tentara Nasional Indonesia – Angkatan Laut officer and one Pakistan Navy officer.

7.2 Fiji

Lieutenant-Commander Saula Tuilevuka presented Fiji's national report (*doc. SWPHC15-07B*) outlining the activities since the last SWPHC meeting.

The Fiji Hydrographic Services (FHS) has undergone major structural reforms and the Chief of Navy

is now also the Chief Hydrographer. A submission has also been made for expansion of the FHS in support of data management and oceanographic operations.

Two new surveys were conducted in Rovodrau Bay, Pacific Harbour and Valaga Bay, Savusavu to provide updates for BA charts and also for compilation of Fiji chart (F13). Surveys using the new Multibeam Sonar (R2 Sonic 2020) will be conducted in March 2018 with the assistance of a representative from UKHO. A new paper chart (F6) has been published depicting the Fiji Exclusive Economic Zone. Final QA/QC checks on charts BA747 and F13 were in progress.

The FHS had made significant progress under the Official Development Assistance (ODA) Project currently underway with the Korean Hydrographic and Oceanographic Agency (KHOA). The ODA was into the third year of the 5-year project.

The challenges faced were mainly related to training – i.e. practical attachments for hydrographic surveyors and nautical cartographers, conduct of multibeam surveys and processing of data – and assistance to set up the FHS Geospatial Database Framework.

7.3 France

Commander Mikael Le Gleau summarised France's report on its areas of hydrographic and charting activity in the SW Pacific (**SWPHC15-07C**).

Surveys were carried out in ports, bays, recommended routes and passages all around New Caledonia. Main focus was on the Grand Lagon Nord in support of maritime surveillance and development of cruise activity. During July-December 2017 hydrographic support (surveys, tide predictions, seafloor models and analysis) was provided after Kea Trader grounding on Durand Reef. Work was also carried out relating to deployment of a new tide station at Ouvea and maintenance of the Sea Level Stations (SLS) network dedicated to sea level observation and tsunamis warning system.

Mooring area survey, field surveys (in support of SDB or exploitation of aerial images) and SLS network maintenance were also carried out in French Polynesia and Wallis & Futuna.

LIDAR Surveys data, critical for coastline management and risks prevention, are freely available through SHOM's data portals (data.shom.fr and e.g. for French Polynesia: <http://diffusion.shom.fr/pro/risques/altimetrie-littorale/lidar-polynesiefrancaise-2015.html>).

SHOM's 2017-2020 national hydrographic survey programme details the long-term targeted objectives of CATZOC compliant hydrographic surveying in New Caledonia, French Polynesia and Wallis & Futuna waters and the current surveys coverage for those three areas. The survey work related to those areas for the next three years is detailed as follows:

- New Caledonia: Prioritized survey works defined by the hydrographic commission of New Caledonia, in the framework of the cooperation in hydrography between the State and the government of New Caledonia.
- French Polynesia: Prioritized survey works defined by the sub-committee for hydrography of French Polynesia in the framework of the cooperation between the State and the government of French Polynesia.
- Wallis & Futuna: Survey works in lagoon waters (using deployable equipment) and opportunity surveys.

In 2019, it is planned to conduct surveys with N/O *L'Atalante* in French Polynesia, New Caledonia and Wallis & Futuna.

An Airborne Lidar survey project covering Iles de la Société has achieved funding and awaiting to be specified and contracted.

Seven INT charts were produced (1 new chart and 6 new editions). Three new INT charts are planned for publication in 2018-2019 (INT6840, INT6841, INT654). FR7283 will remain a national chart; hence Action 14/08 can be closed. Seven new ENC cells have been published since the last conference. 55 new cells are planned for 2018-2019. Full coverage of New Caledonian waters is

expected to be achieved by the end of 2018.

All 14 stations in the SLS Network have been installed – with the last one in Ouvea in March 2017. Maintenance is carried out by SHOM on yearly basis. The data contributes to the Pacific Tsunami Warning System, monitoring of sea level rise and storm surge.

7.4 New Zealand (NZ)

Mr. Adam Greenland presented NZ's national report (*doc. SWPHC15-07D*). As a result of the NZ Hydrographic Risk Assessment a long-term hydrographic survey programme (HYPLAN) was developed in April 2017. A Supplier Panel comprising two commercial survey firms have been appointed for the next 3 years. Focus of the FY 17/18 has been the survey of Kaikoura region to update charts and detect uplift caused by a large earthquake in the area.

Since the last meeting one new ENC and one new paper chart of New Zealand waters have been published. In addition 54 new editions of ENC (39 for NZ and 15 for SWP) and 35 new editions of paper charts (34 for NZ and 1 for SWP) were produced, mainly as part of the Pacific Regional Navigation Initiative (PRNI).

New Zealand continued making progress in the PRNI, completing a hydrographic risk assessment for Samoa (Sept 2017) and a traffic analysis for Tokelau (Oct 2017). Both are published on the IHO website along with a risk assessment for Niue (Jul 2016). Further survey work is planned for Samoa (2019), based on the risk assessment results. In-country MSI training was provided in Samoa (Oct 2017). Satellite Derived Bathymetry (SDB) for Tonga, Niue, Tokelau and the Cook Islands is in progress. Airborne Laser Bathymetry (ALB) in Tonga and Niue is planned for mid-2018, followed by MBES in Tonga using an Unmanned Surface Vessel. The SDB, ALB and MBES data will be used to update existing charts and produce new charts, replacing charts in fathoms on undetermined datums.

LINZ is working with other NZ government agencies and research institutes to ensure all ocean data from international marine science research voyages in NZ EEZ is discoverable and available. It has published a series of indexes to data holdings, allowing users to identify and request bathymetry data through the LINZ Data Service. (<https://data.linz.govt.nz/>)

Members noted the increasing use of SDB in the region and agreed to provide feedback to the IRCC on the use of SDB with potential need for technical specifications, quality and standards.

Action 27: Chair to provide feedback to the IRCC on the use of SDB with potential need for technical specifications, quality and standards (deadline: IRCC10).

7.5 Papua New Guinea (PNG)

Mr Nick Pion summarised the national report for PNG (*doc. SWPHC14-07E*). Surveys of some ports had been carried by contracted surveys and data submitted to the AHO for updating relevant charts. The National Maritime Safety Administration (NMSA), through the ADB Maritime & Waterways Safety Project (MWSP), is improving navigation safety and efficiency of shipping around PNGs coastal waterways through surveys in a number of areas. About 70% of the work covering approx. 2,500 km² has been completed by the contractor using ALB and MBES. Five uncharted wrecks were also identified during the surveys. The RAN carried out surveys of Port Moresby and Batumata Point utilising HMAS Melville and LADS respectively.

In September 2017 one NMSA participant attended the 'Hydrographic Survey for Disaster Management & Relief' training in Jakarta, organised by Indonesia Hydrographic & Oceanographic Centre. Two participants attended the 'Workshop on Sustainable Light and Power for Next Generation (IALABATT/IALALITE), Koblenz-Kongress, Germany, 20-24 March 2017.

A hydrodynamic study of archipelagic waters will be conducted in 2018 to support charting purposes under the ADB MWSP project.

The new maritime boundaries of PNG as per UNCLOS were gazetted in May 2017 under the Maritime Zones Act. The new limits include 12M TS, 24M CZ and 200M EEZ. The information is available to public and has also been provided to AHO. The next phase of the maritime delimitation,

i.e. defining internal/coastal waters, is expected to commence this year (2018).

7.6 Tonga

Mr Sioeli Fifita presented the national report for Tonga (*doc. SWPHC15-07F*). His Majesty's Armed Forces (HMAF), Tonga is responsible for hydrographic surveys and the Ministry of Infrastructure (MOI) is responsible for maritime safety information, AtoN and regulatory requirements. The survey of Nuku'alofa Harbour, to be carried out under the UK Commonwealth Marine Economies (CME) Programme, had been delayed due to Tropical cyclone GITA. Survey work under the NZ PRNI Program is planned for mid-2018. LINZ is the PCA for Tonga and the current coverage comprises 13 paper charts and 12 ENC's. Five charts are non-metric (in fathoms) / non-WGS 84. In terms of personnel Tonga had 2 Cat 'B' Hydrographic Surveyors, 1 Cat 'B' Nautical Cartographer and 1 who underwent MSI training. Various training is required – i.e. for a staff member to attend Cat 'A' Hydrographic Survey Course, personnel to undergo MSI training, and guidelines or training for developing Hydrography Governance for Tonga.

IALA carried out a Risk Assessment visit in early 2017 and work is underway to complete the recommendations in the report.

Mr Greenland commented that there had been more than one representative from Tonga attending the last three MSI Training courses in the region. It seemed to reflect that there has been a high turnover of staff where a person trained in MSI does not perform that role in the department for a significant amount time.

7.7 United Kingdom (UK)

Rear Admiral Tim Lowe presented the national report for United Kingdom (*doc. SWPHC15-07G*). Since the last meeting the UKHO had published 36 New Editions / New Chart adoptions in the SWPHC region. Much of this is due to increased survey activity in the area. A total of 104 ENC cells have been published in the region, of which 10 were produced last year. As a result of ECDIS mandation there has been a significant drop in demand for paper charts.

The UK Government funded CME Programme is currently in Year 2 of its 5-year programme. Survey activities involving SDB and MBES in Tonga commenced in mid-January 2018. Survey areas have been prioritised by UKHO, LINZ, Ministry of Infrastructure Tonga and local stakeholders.

In support of the UN Global Goals for Sustainable Development the UK Government has committed £20 million to a four year programme (Blue Belt Programme) providing long term protection and sustainable management of over four million square kilometres of marine environment across the UK Overseas Territories. Discussions are being held with the Administrator in Pitcairn Islands to identify areas requiring modern surveys and also the logistics to enable the work to be carried out in this remote area.

From 16-20 April 2018, London will host the Commonwealth Summit which will culminate in the Commonwealth Heads of Government Meeting. It is proposed to showcase the activities being undertaken under the CME Programme during the Summit, thus providing an opportunity to highlight the importance of up-to-date and modern ocean data to help nations develop their blue and ocean economies.

The UKHO conducts two annual Category B accredited Nautical Cartography training courses for foreign HO students, i.e. the IHO-NF CHART Project course which is funded by the Nippon Foundation and the newly established UKHO Bursary course. The following SWPHC students have benefitted from these opportunities:

- Bursary Course (Jan - Apr 2018): Australia and New Zealand.
- Nippon Course (Sept - Dec 2017): Kelepi Bainivalu, Fiji.
- Bursary Course (Jan-Mar 2017): James Jason Morrell, Fiji, and Sioeli Alokuo'ulu Malu Fifith - (Joe), Tonga.

It is proposed to expand the UKHO Global Partnering and Engagement team covering the EAHC and SWPHC regions by establishing a permanent position to assist the Head (currently Mr Jamie McMichael-Phillips). The intention is to have the person based in Suva, Fiji in order to enable a greater regional focus and assist in capacity building.

7.8 United States of America (USA)

Rear Admiral Shepard Smith provided an overview of the USA national report (*doc. SWPHC15-07H*), reporting on progress and plans for survey and charting in the region carried out by USA (NGA and NOAA). NGA in coordination with NOAA has produced six new ENC cells to provide complete coverage of Palau waters. NOAA has recently published a National Charting Plan – a re-scheming of the ENC bands and scales from 131 current scales to 10 for improved clarity, consistency and alignment with IHO recommendations. USA (NGA) is the PCA for Palau, Federated States of Micronesia and Republic of Marshall Islands.

No new surveys were conducted since the last SWPHC meeting. However there are extensive holdings of bathymetric data available, much of it collected by or for NOAA for missions other than traditional hydrographic surveying. While it will take time to assess and apply these data holdings, US charts will see substantial improvements in the SWPHC region in coming years.

Training opportunities are available at various institutions in the United States. Two Category A hydrographic programs are available through (i) University of Southern Mississippi, and (ii) University of New Hampshire. In addition two Category B programs are available through (i) U.S. Navy's 6-month International Hydrographic Management and Engineering Program in Gulfport, Mississippi, and (ii) NOAA recently started a 1-year Nautical Cartography course at Silver Spring, Maryland.

NOAA operates several permanent National Water Level Observation Network (NWLON) tidal stations located throughout the Pacific Islands. The NWLON network in the South West Pacific consists of 6 active sensors - American Samoa (1), Guam (2), Republic of the Marshall Islands (1), Midway Island (1) and Wake Island (1). The data is usable for both near real time control of hydrographic surveys, as well as long term trend analysis. Tide and water level data can be obtained at the following link:

<https://tidesandcurrents.noaa.gov/stations.html?type=Water+Levels#PacificIslands>

The Extratropical storm Surge and Tide Operational Forecast System (ESTOFS) is one of the numerical ocean prediction products developed and maintained by the Coast Survey Development Laboratory (CSDL). On February 13, 2018, a new ESTOFS-Micronesia system became operational in the tropical West Pacific.

7.8 Vanuatu

Mr. Henry Worek provided Vanuatu's report (*doc. SWPHC15-07I*), highlighting the various activities carried out since the last meeting:

- Vanuatu became an IHO Member in 2017
- A National Hydrographic Committee has been established
- Cabinet had approved for survey of 10 priority areas and further approval will be sought for additional 22 areas
- A review of all relevant standards was undertaken and copies provided to all stakeholders for their information
- Plan to form a new Hydrographic Survey Unit within the Lands and Survey Department
- MSI National Coordinator along with local contacts who report navigationally significant information to him for analysis and dissemination has established contact with NAVAREA X Coordinator.
- Upgrading wharves in Port Vila and Santo to cater for cruise liners and container ships.

On behalf the SWPHC, the Chair congratulated Vanuatu on becoming a Member of the IHO and the significant progress achieved to date, as well as the planned activities for the future.

Decision 9: to note the reports under agenda item 7 (docs. SWPHC15-07A to I).

8. Reports by Associate Members and Observers

8.1 Cook Islands

Ms Rima Browne provided an overview of the national report (*doc. SWPCHC15-08A*). Following approval by the Government, the Cook Islands National Hydrographic Service (CINHS) and the National Hydrographic Coordinating Committee (CINHCC) were established in 2016. Mr Vaipo Mataora is the National Hydrographer and also Chairman CINHCC. Mr Stephen Simpson was appointed as the MSI Coordinator. In the same year the Cook Islands and LINZ signed a Bilateral Agreement concerning cooperation in hydrography.

In May 2017 survey operation utilising SBES and SSS equipment were carried out in two priority areas, Penhyrn and Rarotonga, by LINZ on behalf of CINHS. Work was done in updating the positional accuracies of ENC's and incorporating new survey data. LINZ is planning to update some of the paper charts.

Participants from Cook Islands have attended various training courses and workshops (MSI, Tides and Water Levels, etc.) conducted in the region under the IHO CB Work Programme and the PRNI.

8.2 Kiribati

Mr Eritaria Tauro summarised his nation's progress (*doc. SWPHC15-08B*). 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.

An MSI coordinator has been appointed and MSI broadcasted locally by Coast Radio Station. Plans are underway to establish a Hydrographic Service.

Application for IHO membership is in progress.

UKHO is the PCA and has published a total of 14 charts covering the whole of Kiribati. The charts were published in the 1950s and 1960s based on surveys carried out around 1943 and earlier. Some of these charts have been updated.

Capacity Building activities carried out / planned as follows:

- An IALA and SPC team visited Kiribati in November 2016 for an Aids to Navigation (AtoN) assessment and training.
- Training for Level 1 AtoN Manager (Busan, South Korea in July 2017)
- SPC PRNI Workshop 'Promoting Awareness on Importance of Hydrography and MSI' (Tarawa, August 2017)
- SPC-PRNI Workshop on MSI (scheduled for April 2018).

In May-June 2017 the IMO audited the Kiribati Marine Division as under the IMO Member State Audit Scheme (IMSAS). The findings were

- The State did not establish nautical and hydrographic services in order to prepare and issue sailing directions, lists of lights, tide tables and other nautical publications, where applicable, satisfying the needs of safe navigation.
- In addition, no surveys of the coastline of the three groups of islands of the State had been carried out in the past 50 years in order to keep all nautical information necessary for safe navigation up-to-date.

Corrective Action Plan had been sent to IMO on 16th January 2018.

Rear Admiral Smith stated that substantial bathymetric data relating to Kiribati was held at the IHO Data Centre for Digital Bathymetry hosted by NGDC in Boulder, USA and may be useful for charting purposes. USA offered to assist Kiribati and UKHO (PCA) in searching for this data.

8.3 Nauru

Mr Kemp Detenamo provided a brief report for Nauru (*doc. SWPHC15-08C*). Legislation is still a challenge as local expertise in this field is still lacking. UKHO had offered to be the PCA and proposed to carry out technical assessment visit soon.

The upcoming government projects, under the Asian Development Bank, were the New Port

Development Project and the Submarine Cable Project to provide high-speed internet. Some surveys have been carried out by the consultant (Cardno) and data was available to the PCA for charting.

8.4 Niue

Ms. Lynsey Talagi presented the report for Palau (*doc. SWPHC15-08D*). A Bilateral Arrangement with LINZ was signed with LINZ (PCA for Niue) in March 2017. In November 2017 SPC carried out a 'Safety of Navigation Gap Analysis and Needs Assessment' under the Pacific Safety of Navigation Project. The report issued in January 2018 had a number of recommendations, mainly pertaining to the requirement for national legislation, an effective system for MSI, and charting.

In October 2017 the Government embarked on a Marine Spatial Plan (MSP) which includes a Large Scale Marine Protected Area covering 40% of Niue's EEZ encompassing Niue Island, Antiope Reef and Beveridge Reef.

The focus for the future is on the following:

- Marine Spatial Plan - Legislation, Compliance Strategies, Sustainable Financing
- Establish National Hydrographic Authority and Coordinating Committee
- Training for National MSI Coordinator
- IHO Technical Implementation Visit (scheduled)
- Safety of Navigation gap analysis needs assessment - Implement recommendations
- PRNI – Satellite Derived Bathymetry and Airborne Laser Bathymetry (July 2018)

8.5 Palau

Mrs Darlyne Takawo provided a brief report for Palau (*doc. SWPHC15-08E*).

Palau does not have a Hydrographic Office as such. Palau Automated Land And Resource Information System (PALARIS) is responsible for developing, maintaining, updating and distributing geographic information for use by national agencies and the public and to coordinate all geographic activities in national and state governments.

The most recent hydrographic work was a depth survey of eastern side Malakal Commercial Port carried out by a private company. However there has been no official (government) verification of the survey.

Chart coverage: USA (NGA) Chart 81141 at scale 1:165,000 published in 1996.

8.6 Samoa

Mrs Makerita Antonio provided a brief report for Samoa (*doc. SWPHC15-08F*). A Technical Visit was carried out by LINZ in 2016 and following that Cabinet approved establishment of a National Hydrographic Committee in July 2017. LINZ conducted a Risk Assessment the same year to identify particular hydrographic needs and recommended modernization of the charts which had depths still in fathoms.

Staff from the Marine Department had attended the MSI training workshops in New Zealand (2016) and during the LINZ Visit in 2017. New Zealand had accepted Samoa's request to be part of the PRNI program and a team will be visiting Samoa in July 2018. SPC would conduct a Technical Visit in March 2018; activities would include a 'Safety of Navigation' Workshop, Technical Assessment of status of AtoN, Economic assessment and Legal assessment.

It is proposed to appoint a MSI Coordinator and establish a hydrographic office. Samoa is also keen to become a member of the IHO.

8.7 Tuvalu

Mr Taasi Pitoi presented the Tuvalu national report (*doc. SWPHC15-08H*). The primary source of shipping within Tuvalu comprises the transshipment of fish and incoming cargo for the group of nine small islands (coral atolls). There is capability for basic maritime safety information service, but no formal structure. Majority of the waters are un-surveyed and there is no current capacity to undertake any seabed mapping within Tuvalu. UKHO maintains a small series of

BA charts for Tuvaluan waters, although these are not able to fully support all users. A Technical Assessment Visit, led by UKHO, was carried out in November 2016. Visits by SPC and IALA are scheduled for February 2018. The Pacific Safety of Navigation Project (new Zealand) is already funding the provision of guidance on governance. Assistance is also being sought from the Republic of Korea Government to carry out an AtoN project. Planned activities during the 2018-2019 period are to have legislation in place, establish an MSI Coordinator, training for MSI personnel, establish the National Hydrographic Committee. It is also proposed to become an IHO Member in 2-3 years time.

8.8 Indonesia

Captain Yanuar Handwiono and Commander Oke Dwiyanu Pribadi presented the national report for Indonesia (*doc. SWPHC15-08I*), outlining the activities of the Indonesian Navy Hydrographic and Oceanographic Center (PUSHIDROSAL) which ranged from surveys, researches, publication of nautical charts, marine environment and safety of navigation, to support armed forces and public needs.

PUSHIDROSAL is committed to continue efforts in encouraging greater international cooperation and coordination for the harmonisation of navigational charts through increased hydrographic surveys, data quality and hydrographic information on a global basis, particularly relating to international navigation and protected marine areas.

Indonesia (PUSHIDROSAL) proposed to join the SWPHC as it realised the importance of building cooperation with SW Pacific countries with the aim of not only improving safety of navigation in the region but also in the sharing of knowledge and experience and contributing to capacity building in many maritime aspects.

The Chair thanked and congratulated all participants for their contribution and interaction in the presentation of the reports. The progress made in a number of countries and in various areas, as well as highlighting areas that require on-going work, was noted.

Decision 10: to note the reports under agenda item 8 (docs. SWPHC15-08A to I).

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

9.1 SPC (Pacific Community)

Mr Salesh Kumar provided a broad overview of the hydrographic related activities of the SPC Geoscience Division (*doc. SWPHC15-09.1*). As part of the PRNI project. NZ MFAT has engaged SPC to work with targeted countries (Kiribati, Tuvalu and Vanuatu) to support hydrographic building capability initiatives in conjunction with work being carried out by international bodies and development partners. During the 1st Phase of the project (ending in June 2018) MSI workshops were held in these three countries, which resulted in 'Hydrographic Notes' being identified for forwarding to the PCA (UKHO).

In late 2016 SPC carried out work related to hazard assessment in Tanna, Vanuatu involving single-beam surveys (SBES), RTK GNSS survey, and unmanned aerial vehicle (UAV). The data has been incorporated into a coastal terrain model. An inundation assessment was done for Kirimati Atoll, Kiribati. UAV survey, GNSS RTK survey, tide gauge installation, wave and current meter deployment. A hydrographic survey of Savusavu Jetty and Approaches was carried out in March 2017 and involved the Fiji Hydrographic Service as part of capacity building.

'Data 'Discovery' is also a key output of the PRNI Project (Phase 1). Accordingly SPC data carried out a review of its data holdings and analysed its suitability for charting purposes. Progress was also made in obtaining release agreements with PICTs for release of data held by SPC to PCAs. Activities completed include:

- Secured 8 out of 17 PICs' data release agreement
- PRNI-SPC data portal 90% complete – enable PCA to make informed decision on data usefulness
- Data release matrix complete
- Data for 4 countries released to PCA (LINZ)

The 2nd Phase of the project would be carried out during June 2018 to June 2020. This would include 2 visits per country per year.

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

Mr Stephen Bennett provided a brief presentation on risk management and the quality of Maritime Management in the Pacific Region (*doc. SWPHC15-09.2*).

He emphasised on a number of salient points on SOLAS Chapter V Regulation 13, i.e.:

- (13.1) re requirement for a Contracting Government to provide “as it deems practical and necessary” by itself or with other Governments “such AtoN as the volume of traffic justifies and the degree of risk requires”
- (13.2) re AtoN should conform to international standards (IALA recommendations and guidelines)
- (13.3) re information about AtoN must be given to all concerned (mariners; stakeholders etc.)
– MSI

Some of the relevant IALA Publications pertaining to the guidelines were outlined:

- Guideline 1109 on theft and vandalism deterrents
- Guideline 1091 on bird deterrents
- Guideline G1136 - AtoN services in extremely hot and humid climates
- Guideline G1138 on Simplified IALA Risk Assessment – SIRA
(www.iala-aism.org/publications)

Three Risk Management tools used by IALA:

- Ports And Waterways Safety Assessment (PAWSA) – qualitative risk assessment; not suitable for small Island States
- IALA Waterway Risk Assessment Programme (IWRAP MkII) – quantitative risk assessment; calculates statistics; small powerful tool recommended for use by hydrographic and AtoN organisations
- Simplified IALA Risk Assessment (SIRA) - Working on Probability or likelihood) and come up and reduce these to a level that is reasonably practicable (As Low As Reasonably Practicable – ALARP) which is acceptable to stakeholders.

Quality of Maritime Maturity for AtoN service provision to ascertain a whether a State is meeting international obligations. A matrix of ‘Volume of Traffic and Degree of Risk’ against ‘Maturity of Maritime Management’ provides an indication of the ‘need’ level of a State.

9.3 GEBCO (General Bathymetry Chart of the Ocean)

9.3.1 GEBCO Report

Ms Johnathan Kool provided an interesting and comprehensive presentation on GEBCO, outlining its organisational structure and the various sub-committees and projects (*doc. SWPHC15-09.3*).

The Sub-Committee on Regional Undersea Mapping (SCRUM) aims to build a closer collaboration with regional mapping efforts and coordinate, as well as encourage, the incorporation of their compilations into GEBCO. The Global GEBCO grid is continuously updated in part from these regional grids, benefiting greatly from their local knowledge and expertise. The various GEBCO products (Gridded Bathymetry, Undersea Feature Names, Bathymetry Processing Cookbook) are available on its website (<https://www.gebco.net>). The GEBCO Source Identifier Grid (SID) provides source of each depth value, i.e. the provider and whether derived from trackline data or based on interpolation. Less than 20% of data in the current GEBCO 30 arc-second global grid of elevations,

GEBCO_2014 Grid, are actual measured depths and the rest are interpolated values.

In order to more accurately model the shape of the floor and serve a wider user community, GEBCO is striving to improve its gridded bathymetric datasets in shallower waters. One way of achieving it was to extract this information from the ENC's. In 2006 and 2016 IHO Member States were requested to provide GEBCO with bathymetric data from ENC's. However it was emphasised that raw (bathymetric) survey data, where available, will be used and interpolated (ENC) data resorted to where such information is not available.

The Nippon Foundation funds an annual course 'Postgraduate Certificate in Ocean Bathymetry' conducted at the University of New Hampshire, USA. It is part of capacity building initiative designed to train a new generation of scientists and hydrographers in ocean bathymetry. Over the last 13 years a total of 78 scholars from 35 coastal states had attended the course.

9.3.2 GEBCO Seabed 2030 Report

Mr Johnathan Kool reported on the Seabed 2030 program, a collaborative project between GEBCO and the Nippon Foundation of Japan launched at the United Nations Ocean Conference in June 2017. It aims to produce the definitive map of the World Ocean floor by 2030 to make policy decisions, use the ocean sustainably, and undertake scientific research based on detailed information of the Earth's seabed. The project supports United Nations Sustainable Development Goal 14: to conserve and sustainably use the world's oceans, seas and marine resources.

Project started in August 2017 and a Director has recently been appointed.

The Work Plan comprises:

- (1) Merging all available data into the high resolution ocean map
- (2) Developing the tools and systems to facilitate building and using the map
- (3) Identifying and encouraging technical innovation in bathymetric mapping
- (4) Future mapping expeditions to increase the coverage
- (5) Managing the project

One Global Data Assembly and Coordination Centre (GDACC) and four Regional Data Assembly and Coordination Centres (RDACC) will be established. NIWA in New Zealand will co-ordinate the South and West Pacific Ocean RDACC.

Information about Seabed 2030 (<https://seabed2030.gebco.net/>)

Mr Adam Greenland provided a brief report on the Seabed 2030 South and West Pacific Centre - SaWPac (*doc. SWPHC15-09.3*). SaWPac is responsible for an area of approx. 150 million km² covering 39 countries extending from China to Tonga. The Centre Team has representatives from NIWA, LINZ and GNS Science. The Centre acts as the regional focus for data compilation and co-ordination activities for the Seabed 2030 Project. One of the responsibilities of the Centre is to establish a Regional Mapping Committee (RMC) consisting of experts and contributors from nations in the region - hydrographic agencies, research institutes. The SWPHC would have a significant role to play by contributing bathymetric data to the project. SaWPac will work with regional partners and Member States to gather the data and identify the mapping needs.

9.3.3 GEBCO Proposal

Mr John Lowell briefed the meeting on the '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' (*doc. SWPHC15-09.3*). The proposal is an updated version of the one discussed at SWPHC14 to contain reference to few new documents. The GEBCO Guiding Committee would be sending out a letter encouraging coastal States to permit their RENCs to extract XYZ point data from ENC's to support the GEBCO project.

The meeting considered the key elements of the presentations under agenda item (9) and agreed on the following:

Decision 11: to note the reports under agenda item 9 (*docs. SWPHC15-09.1 to 3*).

Action 28: coastal States to consider participating as active members of the GEBCO Seabed 2030 project (permanent).

Action 29: coastal States to consider providing bathymetric data and support to the New Zealand based South and West Pacific Centre (SaWPaC), Regional Data Assembly and Coordination Centre (RDACC) (permanent).

Action 30: coastal States to check the DCDB data for checking existing chart content and eventually for chart production (permanent).

10. Capacity Building

10.1 Report on the IHO CBSC Meeting, and

10.2 Update on the 3-year Capacity Building Plan

Mr. Adam Greenland (SWPHC Capacity Building Coordinator) provided updates on the capacity building activities and submissions to CBSC since the last SWPHC meeting (*doc. SWPHC15-10.1*) and (*doc. SWPHC15-10.2*).

The following IHO-funded CB activities were carried in the region:

- Technical Assessment & Advice (Samoa) – Carried out August 2016 (LINZ led). Report submitted to IHO Secretariat in May 2017
- Technical Assessment & Advice (Tuvalu) – Carried out November 2016 (UKHO led). Report submitted to IHO Secretariat in February 2017
- Technical Workshop for PICTs in Formulating and Implementing Strategic Development Plans for Hydrography Workshop held in Noumea, New Caledonia in November 2016 – linked with SWPHC14.

Status of the SWPHC projects approved by IHO CBSC14 Meeting held in 2016 was as follows:

- SW Pacific Region Industry Survey Project (involving Australasian Hydrographic Society, UKHO and SPC) – cancelled
- MBES Training Workshop for Fiji Hydrographic Office – planned for April 2018
- Solomon Islands Nautical Cartographer Development (AHO and SIHU) – cancelled as SIHU was unable to recruit staff to be trained.

Status of the SWPHC projects approved by IHO CBSC15 Meeting held in 2017 was as follows:

- 1-Day Technical Workshop on Implementing Hydrographic Governance - completed on 20 Feb 2018, linked to SWPHC15
- MSI Regional Workshop (LINZ) – planned for August 2018
- Samoa Technical Implementation Visit (LINZ) – date to be advised
- Niue Technical Implementation Visit (LINZ) – date to be advised

Mr Greenland also highlighted that IHO Circular Letters had been issued regarding following training courses offered as part of the IHO CB Work Programme:

- CL 53/2017 – M.Sc. Programme in Hydrographic Surveying (Category A) at Uni. of Southern Mississippi (USA) sponsored by Republic of Korea - Aug 2018 - Aug 2019
- CL 04/2018 - IHO-NIPPON Foundation Chart Project - Course in Marine Cartography and Data Assessment (Category B) - UKHO Taunton, UK, 3 Sep - 14 Dec 2018
- CL 17/2018 - IHO-IOC-Nippon Foundation - GEBCO Training Programme; 1-year Graduate Certificate Course in Ocean Bathymetry (Category A) at Uni. of New Hampshire, USA commencing Aug 2018.

IHO Member States in the region wishing to apply were encouraged to contact their PCAs who would be able to assess/assist with their application submissions.

Mr Alberto Costa Neves (CBSC Secretary) briefed the meeting on general arrangement for capacity building under the IHO CB Strategy. Phase 1 activities related awareness, governance, assessment

(by technical visits), MSI workshops, etc. and all coastal States in the region could benefit from these. Phase 2 activities related to surveys and charting are for Member States only; however other States may participate in these at their own cost – e.g. attending training courses. Procedure 4 of the CBSC Procedures lists the priorities which are taken into consideration when the CBSC evaluates submissions requesting support. (https://www.iho.int/mtg_docs/CB/Procedures.htm)

10.3 Future capacity building initiatives

Members reviewed the SWPHC 3-year Capacity Building Plan (*doc. SWPHC15-10.2*) and discussed the future capacity building initiatives for the region. It was agreed that priority one would be to hold a 2-day workshop in conjunction with the next SWPHC meeting. Another submission for consideration is a Technical Visit to Palau as this had been brought up in previous meetings and also during the recent workshop. Coastal states would work closely with PCAs regarding their capacity building requirements and prepare bids for submission to CBSC16 Meeting to be held in May/June 2018. These are to be forwarded to the CB Coordinator who, in coordination with the Chair, would submit it to CBSC16. Coastal states were encouraged to consider including capacity building training within contracts for hydrographic surveys in their countries. Members conducting hydrographic surveys in the region were also encouraged to consider offering opportunities for capacity building to the beneficiary countries.

Decision 12: to adopt the following CB Activities as priority for 2019: 1st: 2-day workshop preceding the SWPHC annual conference; and 2nd Technical Visit to Palau.

Action 31: coastal States and PCAs to provide CB requests to the CB Coordinator (deadline: 15 March 2018).

Action 32: CB Coordinator to compile the SWPHC requests for support and submit to the CBSC16 in coordination with the Chair (deadline: 1 April 2018).

Action 33: coastal States to consider adding capacity building training within contracts for hydrographic surveys (permanent).

Action 34: Members conducting hydrographic surveys in the region to consider offering opportunities for capacity building to the beneficiary countries (permanent).

10.4 Regional Capacity Building Initiatives

10.4a Update on Pacific Regional Navigation Initiative (PRNI)

New Zealand gave an update on its aid programme in the region (*doc. SWPHC15-10.4*) as follows:

The 5-year project commenced in 2015 with a total budget of NZ \$5M for its programme of works. It is a partnership between MFAT, LINZ and SPC having a focus on navigational aspects of maritime safety and builds on previous success of programmes in the region – particularly risk assessments in Vanuatu, Tonga and Cook Islands. An additional \$2.2M was secured in January 2018 to continue the programme to 2021.

The Project's had five outputs, i.e.:

- Output 1 (Pacific-wide Data Discovery) – SPC to search database to identify data with potential for use to improve quality of existing charts; SPC to work with PICs to release data to PCAs
- Output 2 (Hydrographic Risk Assessment) – LINZ to undertake risk assessments for Niue, Samoa and Tokelau
- Output 3 (Capability / Capacity Building) – LINZ to work with NZ's 5 PICs on annual plans to increase capability following IHO framework; LINZ to assess NZ's 5 PICs requirement for AtoN; SPC to focus on other PICs prioritised PICs to build capability and build annual plans for improved legislation and AtoN.
- Output 4 (Mitigation Measures) – LINZ to lead prioritising and project managing mitigation measures including AtoN. Hydrographic surveying and chart modernisation.

- Output 5 (Pacific-wide Partnerships) – NZ to work with regional partners, development donors, PICs and private sector to develop partnerships for improving navigation safety.

Bilateral Arrangements with Cook Islands and Niue concerning cooperation in hydrography are in place. Risk Assessments were carried out in Niue (2016) and Samoa (2017) a Vessel Analysis Assessment for Tokelau was done in 2017. All the Risk Assessment reports are available on the IHO website (Capacity Building section). These reports have been used by IALA and SPC as the basis for their stage two assessments. Incorporating data from SPC new paper charts and ENC's of the Cook Islands were released in September 2017. Results of the 2015 LiDAR survey of Samoa for climate change purposes have been reprocessed and used to update the paper charts and ENC's were published in January 2018. As part of the planned chart production schedule for the region new charts will replace current fathoms / non-WGS84 charts and hence enable production of large scale ENC's for the first time.

Seventeen participants from various government agencies and institutions attended an in-country MSI Workshop held in Samoa in October 2018.

Surveys planned in the SW Pacific include Satellite Derived Bathymetry (SDB) in Cook Islands, Niue, Tokelau and Tonga. LiDAR and MBES surveys in Tonga will provide an opportunity for capacity building of the Cat 'B' trained surveyors – survey afloat, installation of tide-gauges, etc. LiDAR in Niue and MBES surveys of prioritised areas in Samoa.

10.4b Update on the Commonwealth Marine Economies (CME) Programme

Rear Admiral Tim Lowe provided an overview of the status of the CME Programme which aims to support the sustainable growth of the Commonwealth Small Island Developing States (SIDS) within the Caribbean, Pacific and Indian Ocean regions. The Project was announced at the Commonwealth Heads of Government Meeting (CHOGM) in November 2015 and initially £5.6M was allocated for Year 1. The UKHO component of the CME Programme provides each SIDS with the data required to (a) maximise their maritime trade potential and (b) facilitate development of their Blue Economies. Activities in Year 1 focussed on technical assessment visits to determine the hydrographic needs and requirements of the 16 nations. Year 2 had a budget of £8M and various activities were carried out - surveys, habitat mapping, coastal zone mapping and other ocean related activities.

It is important to ensure that the CME is integrated with existing programmes in the regions and complemented these programmes. UKHO appreciated the cooperation provided by LINZ and SPC in enabling this to move forward.

It is expected that details of Years 3-4 and funding for the Programme will be announced at the next CHOGM to be held in April 2018. Technical visits (full or partial) had been conducted in Fiji, Vanuatu, Tonga, Kiribati, Solomon Islands and Tuvalu. UKHO will liaise with SPC and plan the visit to Nauru.

The Chair thanked New Zealand and United Kingdom for the presentations and offering opportunities and making progress in various ways.

10.4c Update on Regional Safety of Navigation Strategy

Ms Francesca Pradelli provided a brief update on the 'Pacific Safety of Navigation Project' which is funded by the International Foundation for Aids to Navigation (IFAN). The project aims to identify the current and future needs for safety of navigation systems including AtoN procedure for governance and funding, and support the enhancement of the capacity to establish, operate and maintain AtoN. It has a 5-year timeframe, i.e. Phase I (2016-2018) and Phase II (2018-2021), and the 13 targeted countries were Cook Islands, Kiribati, Federated States of Micronesia, Republic of Marshall Island, Nauru, Niue, Palau, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu.

Technical, economic and legal assessment visits have been carried out in most of the countries as part of Phase I. Some of these were conducted jointly with IALA. The remaining visits (Nauru, Samoa, Tokelau, Tonga and Tuvalu) are planned for completion by April 2018.

A Regional Workshop on the Phase I of the Project would be held in Fiji in June 2018. It will provide an opportunity for the AtoN Managers of the 13 targeted PICTs of the Project to discuss the final report and prepare for Phase II.

Mr Henry Worek thanked SPC for the activities carried out in Vanuatu and requested that, as part of the capacity building initiative, local personnel be included in any future hydrographic surveys in the country. The Chair emphasised the importance of local personnel going on board survey vessels to gain experience whenever there are such opportunities in the region.

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

The Chair provided an update of the Working Group's activities since the last meeting. (*doc. SWPHC15-11*)

The WG report included a proposal by New Zealand (LINZ) to withdraw paper chart NZ14630 (INT630) as it has multiple overlaps with various charts. Paper chart NZ93 will become an INT chart to cover for the withdrawal. It was also proposed to extend the coverage of NZ93 equivalent ENC to cover a gap from NZ14630.

There are several low severity ENC overlaps and the PCAs are working to resolve these. Further information on the overlaps is available from Australia (AHO) on request.

Mr Andy Willett (UK) stated that the 2 charts around Kiribati (outlined in Orange on page 6 of Report) have been published and as such should now be shown in 'Blue'.

Decision 13: to note the report from the SWPHC ICCWG (*doc. SWPHC15-11*)

12. Report on ENC production and distribution

CDRE Freeman stated that this item had been addressed in the national reports. Members agreed that there were no current issues and concerns that needed further discussing.

13. Report on GMDSS, MSI and NAVAREA Coordination

13.1 NAVAREA X Report

Commodore Freeman referred to the 'MSI Self Assessment Report – NAVAREA X' (*doc. SWPHC15-13.1*) submitted by Australian Maritime Safety Authority (AMSA) to the IHO WNWNS Sub-Committee Meeting held in August 2017. The Australian Department of Foreign Affairs and Trade Project to provide a GMDSS capability in Papua New Guinea (PNG) was completed in October 2016. It was anticipated that PNG will seek necessary approval for inclusion of Sub-Area 'P' to improve capability for both navigational warnings and search and rescue purposes.

Discussions at the Workshop (preceding SWPHC15) revealed that the Report does not report or qualify a number of MSIs from countries reporting through NAVAREA X. The relevant countries were encouraged to forward their reports to the NAVAREA X coordinator. AMSA would be engaging more closely with countries in NAVAREA X to improve MSI coordination.

13.2 NAVAREA XIV Report

Mr Adam Greenland referred to the 'MSI Self Assessment Report – NAVAREA XIV' (*doc. SWPHC15-13.2*) submitted by New Zealand to the IHO WNWNS Sub-Committee Meeting held in August 2017. As of 1 July 2017 Maritime New Zealand, through Rescue Coordination Centre New Zealand (RCCNZ) assumed the role of NAVAREA XIV Coordinator, taking over the responsibility from LINZ. Maritime New Zealand and LINZ will coordinate closely on the delivery of regional MSI courses, with Maritime New Zealand preparing the training and LINZ maintaining the link with the IHO CBSC.

Decision 14: to note the reports under agenda item 13 (*docs. SWPHC15-13.1 and 2*).

14. Training and Technical Assistance

14.1 International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) Update

Mr Adam Greenland (Chair, IBSC) provided a brief update on the work of the IBSC. The new standards of competence, i.e. S-5A and S-5B (for Hydrographic Surveyors) and S-8A and S-8B (for Nautical Cartographers), have been adopted and published on the IHO website. Development of these involved a great quantum of effort and work through the Board and stakeholders. A completely new approach which involved outlining and detailing learning outcomes, contents and various elements of the Standards. All training programmes seeking recognition are required to comply with the Standards. An additional document ‘Guidelines For The Implementation of the Standards of Competence for Hydrographic Surveyors and Nautical Cartographers’ provides essential information and guidance for institutions on the content and structure of a submission (to the IBSC).

The IBSC will be holding its next meeting in Indonesia in April 2018. The Board will review a total of 16 submissions at this meeting.

USA complemented the regional representatives on the IBSC for the amount of work carried out over the last few years in developing an impressive set of Standards.

15. Industry / Stakeholders Session (Expert Contributors)

The presentations were as follows:

15.1 Carnival Australia - ‘Hydrography and the Influence on SW Pacific National Economies’

Mr Mke Drake’s presentation (*doc. SWPHC15-15.1*) provided an update on the cruise activities, including some operational experiences with ENC, in the SW Pacific.

Australia, from the cruising perspective, has evolved rapidly over the last 10-15 years and is now the highest penetration source market globally. It had the 3rd largest market growth in 2016 - behind New Zealand and China. Passengers increased by 21 % from 2015 to 2016 (1,281,159) and the South Pacific remains Australia’s favourite cruise destination. In recent years there has been destination growth as a result of hydrographic and charting activities – particularly in the western side of the region covering Australia, New Zealand, Indonesia, PNG, East Timor, Solomon Islands. There has been increased government engagement with various nations:

- Close engagement with Australian Department of Foreign Affairs (DFAT) regarding expanding operations into Solomon Islands
- PNG government and Australian DFAT regarding APEC Summit, Port Moresby (Nov 2018)
- New Caledonian Government regarding ongoing operations in Noumea and around the country
- Indonesian Government to extend tourism footprint ex Bali
- Corporate partners Save the Children and impact on remote areas; Vanuatu and Solomon Islands Health care facilities

The lack of adequate charts and/or inadequate AtoN and MSI in many Pacific Islands is a barrier to considering those places for ship visits.

Operational challenges experienced by the fleet related to:

- Navigational awareness of archipelagic baselines (MARPOL). The consistency & prominence of baselines on ENC and ensuring adequate proximity alert.
- Symbology and context of danger (Isolated Danger symbol may not be sufficient in all cases)
- Feedback from Hydrographic Notes/ Marine Safety Information generated from onboard ships
- Timely update of Sailing Directions & Port Information

Bathymetric / High density port ENCs have allowed enhanced safety of navigation in some tight ports.

The presentation generated a brief discussion on ENC quality indicators and the need to populate meaningful CATZOC (Category of Zone of Confidence) values in ENCs. Members attention was

drawn to ZOC ‘U’ (data not assessed) in particular where often the source diagram on the corresponding paper chart would provide more information - as experienced by the UKHO. It was further noted that IHO CL 50/2017 (Requirement To Provide Meaningful CATZOC Information in ENC) had requested HOs to review their ENC production processes and make changes where necessary to encode values of CATZOC for ENCs in accordance with guidance in S-57 ‘Use of the Object Catalogue for ENC’. According it was decided that Members States would check CATZOCs to identify ZOC ‘U’ in their ENCs and report back to SWPHC ICCWG.

Action 35: Member States to check CATZOCs in order to identify ZOC U in their ENCs and report back to the ICCWG (deadline: SWPHC16).

15.2 IIC Technologies – Capability For Hydrographic Capacity Building: Industry Partnering

Mr. Derrick Peyton presented an overview of IIC Technologies, a global provider of geospatial solutions and services, outlining its experience in various areas as well as the training and education that IIC Academy provides. Multibeam Surveys, Airborne Bathymetry and Satellite Derived Bathymetry was utilised for data acquisition in parts of the world in projects which included capacity building components. A major project was establishing of the National Hydrographic Office in Saudi Arabia over a 4-year period involving data collection (surveys), data management (chart production and maintenance), standard operating procedures and training. A survey has just been completed in Guyana and hydrographic work commenced in Tonga as part of the UK CME Programme.

IIC Technologies has also been involved in charting activities with a number of national hydrographic organisations (NOAA, UKHO, SHOM and LINZ).

An IBSC recognised Category B course in Nautical Cartography conducted at the IIC Academy in India. In addition it also has a portable version of this course, i.e. it can be delivered in at the customer site anywhere in the world.

The Chair thanked the expert contributors for their support of the Commission.

Decision 15: to note the reports under agenda item 15 (docs. SWPHC15-15.1 and 2).

16. Other Business

16.1 Satellite Derived Bathymetry

Vice-Admiral Bruno Frachon gave a brief presentation on the IHO Assembly’s decision and IRCC actions regarding Satellite Derived Bathymetry (SDB) and some information on the SDB Seminar proposed to be held in Canada later in the year.

The IHO Assembly held in April 2017 tasked the IRCC to encourage the RHCs to consider using SDB and risk assessment methodologies in uncharted or poorly charted areas in their respective regions as a way of developing survey priority areas as part of attracting donor funding. Accordingly the IRCC9 Meeting held in June 2017 encouraged RHCs to consider the use of SDB, and subsequently the Canadian Hydrographic Service (CHS) in cooperation with NOAA and SHOM have decided to hold a workshop in Ottawa in September 2018.

The SDB Seminar (Ottawa, 18-20 September 2018) will be open to all HOs, industry and academia. The objective is to share the international expertise to advance (Hydrographic Remote Sensing (HRS) by discussing the status of present HRS technologies, its geospatial /hydrospatial applications and impacts of emerging HRS technologies. SWPHC members should consider participation in the seminar.

He also informed about an initiative being considered by the New Caledonia Government regarding installation of a high-resolution image satellite reception facility in New Caledonia. A pre-study has been launched to estimate interest and expected benefits. The study team has sent a questionnaire to nations in the region and will also be forwarded to all names indicated in the SWPHC contact list. The contact for this feasibility study is (Lionel.Loubersac@outlook.fr)

17. Date and Venue of Next Meeting

Commodore Freeman proposed that meetings, associated with workshops, be held annually. There was substantial momentum (in hydrographic activity) in the region currently, and the annual conference would facilitate exchange and sharing of information among members.

Niue offered to host the next meeting in February 2019 - subject to the approval of the Niue Cabinet. As there were no other offers for hosting of the event it was agreed that SWPHC16 and the Technical Workshop be held in Niue in February 2019.

Decision 16: to hold the next meeting (SWPHC16) in Niue (subject to the approval of the Niue Cabinet) in February 2019.

18. 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.

Fiji proposed that Australia continue as Chair of the Commission. All Members supported the proposal. As there were no other nominations Commodore Freeman accepted Fiji's proposal and it was decided that Australia continue as the Chair.

Australia proposed that Fiji remain as the Vice-Chair for the next rotation. All Members supported the proposal. As there were no other nominations Fiji agreed to continue as the Vice-Chair.

Decision 17: to re-elect Australia and Fiji as Chair and Vice-Chair of the SWPHC, respectively.

19. Review of the Actions and Decisions

Chair invited the Secretary and the IHO Asst. Director (Mr Alberto Costa Neves) to present the draft list of actions and decisions agreed during the meeting. This was reviewed and agreed by the meeting participants. The List of Decisions and List of Actions are in **Annexes A and B** respectively.

20. Closing Remarks

In closing, the Chair reiterated that the SWPHC has a strong reputation for its increasing engagement, interaction and pro-activeness in capacity building activities in the region. She thanked all participants for their valuable contribution and proactive discussions during the meeting and the workshop. On behalf of the Commission she also thanked the Fiji Hydrographic Service for hosting the meeting at such a short notice and making it a very successful event.

**15th South West Pacific Hydrographic Commission Meeting
21-22 February 2018
Nadi, Fiji**

LIST OF DECISIONS

No.	Agenda Item	Decision
1	2	to adopt the agenda and timetable (<i>doc. SWPHC15-02 Rev. 2</i>)
2	3	to approve the revised Minutes of the SWPHC14 (<i>doc. SWPHC15-03</i>).
3	4	to include ‘Response to Disasters’ as a standing agenda item
4	5	to include ‘Preparation for the IHO Council’ as a standing agenda item for the SWPHC conferences.
5	5	to note the reports under agenda item 5 (<i>docs. SWPHC15-05.1, SWPHC15-05.4 and SWPHC15-05.5</i>)
6	6	to approve editorial revision of the SWPHC Statutes.
7	6	to accept Vanuatu as a full Member of the SWPHC.
8	6	to accept Indonesia as an Associate Member of the SWPHC
9	7	to note the reports under agenda item 7 (<i>docs. SWPHC15-07A to I</i>)
10	10	to note the reports under agenda item 8 (<i>docs. SWPHC15-08A to I</i>).
11	10	to note the reports under agenda item 9 (<i>docs. SWPHC15-09.1 to 3</i>)
12	10	to adopt the following CB Activities as priority for 2019: (i) 2-day workshop preceding the SWPHC annual conference; and (ii) Technical Visit to Palau.
13	11	to note the report from the SWPHC ICCWG (<i>doc. SWPHC15-11</i>)
14	13	to note the reports under agenda item 13 (<i>docs. SWPHC15-13.1 and 2</i>)
15	15	to note the reports under agenda item 15 (<i>docs. SWPHC15-15.1 and 2</i>)
16	17	to hold the next meeting (SWPHC16) in Niue (subject to the approval of the Niue Cabinet) in February 2019
17	18	to re-elect Australia and Fiji as Chair and Vice-Chair of the SWPHC, respectively

**15th South West Pacific Hydrographic Commission Meeting
21-22 February 2018
Nadi, Fiji**

LIST OF ACTIONS

No.	Agenda Item	Action	Responsible	Deadline
1	4	to liaise with IALA and SPC to encourage coastal States that are not yet Members to join the SWPHC	Chair	Permanent
2	5	to consider: a) providing report and inputs to the WENDWG, prior to the 8th meeting in March; b) providing CATZOC practices to the DQWG; c) following the policy on the use of CATZOC values by the IHO Secretariat; d) maintaining ENC Schemes when the INTogIS Phase II is commissioned; e) keeping to the IHO Secretariat informed of the existence of their bilateral agreements if they act as primary charting authorities on behalf of small island States	Members	SWPHC16
3	5	to consider: a) providing the regional NAVAREA Coordinators with regular flow of MSI; b) maintaining regular communication with the regional NAVAREA Coordinators and inform of any change of personnel or contact details; c) using and following the guidance provided in S-53 – Joint IMO/IHO/WMO Manual on Maritime Safety Information	coastal States	Permanent
4	5	to request the regional NAVAREA Coordinators to provide a clear indication on the state of the provision of MSI for each coastal State in the region	Chair	Permanent
5	5	to check consistency of the information published in the IMO GMDSS Master Plan and that published by the IHO in C-55	coastal States	SWPHC16
6	5	to consider investing in the preparation of candidates for the Category "A" hydrography programme	All Members	January 2019
7	5	to consider applying for the Category "B" cartography programme	All Members	March 2018
8	5	to consider submitting papers for publication in the International Hydrographic Review	coastal States	Permanent
9	5	to identify potential instructors to accompany MSI trainings in order to become MSI trainers and report back to IRCC (Ref. Action IRCC9/2)	All Members	IRCC10
10	5	to consider using Trainer for Trainers (TFT) and e-learning methods to support the development of CB Phase 1 for developing coastal States and report back to IRCC (Ref. Action IRCC9/3)	Members	IRCC10
11	5	to attend WWNWS-SC meetings, to use the Joint Manual on MSI to ensure correct terminology and formats are used in MSI messages, to engage their National MSI Coordinators with the relevant	coastal States	IRCC10

		NAVAREA Coordinator(s) and report back to IRCC (Ref. Action IRCC9/4)		
12	5	to work in coordination with the NAVAREA Coordinators in planning and student selection for the CB MSI training courses (Ref. Action IRCC9/5)	CB Coordinator	IRCC10
13	5	to investigate the possibilities of fund raising and engagement in CB via national organizations and report back to the IRCC (Ref. Action IRCC9/10)	Members	IRCC10
14	5	to consider making all ENC data available through the RENCs (Ref. Action IRCC9/14)	Members	Permanent
15	5	to develop and maintain a SWPHC ENC scheme (Ref. Action IRCC9/15)	SWPHC ICCWG	Permanent
16	5	to consider nominating SWPHC MSDI Ambassadors to promote MSDI and to help Member States to prepare the national reports with respect to the status of MSDI (Ref. Action IRCC9/18)	Members	IRCC10
17	5	to consider releasing datasets or subsets into the public domain via the IHO DCDB (Ref. Action IRCC9/21)	coastal States	Permanent
18	5	to request to the IRCC to consider a mechanism to track national status relating to CSB to consider reviewing data gathering restrictions within their maritime areas of jurisdiction to enable CSB activities to be undertaken (Ref. Action IRCC9/22)	Chair	IRCC10
19	5	to consider supporting the CSB initiative with positive actions, such as requiring all research vessels collect bathymetric data for late uploading, when on passage or when it does not interfere with other research activities (Ref. Action IRCC9/23)	Members	Permanent
20	5	to consider contributing of bathymetric data in shallower coastal areas to GEBCO in order to support the production of higher resolution gridded data products and report back to IRCC (Ref. Action IRCC9/29)	Members	IRCC10
21	5	to consider using satellite derived bathymetry and risk assessment methodologies in particular in uncharted or poorly charted areas as a way of developing survey priority areas as part of attracting donor funding and report back to IRCC (Ref. Action IRCC9/32 and 33)	Members	IRCC10
22	5	to consider participating in the workshop on satellite derived bathymetry sponsored by Canada in Ottawa in September 2018 (Ref. Action IRCC9/34)	Members	September 2018
23	5	to consider providing technical resources to the DQWG and report back to IRCC (Ref. Action IRCC9/35)	Members	IRCC10
24	5	to note the list of events organized by other inter-governmental and stakeholders indicated in doc. IRCC9-09B, consider how the IHO might be represented in those events that are considered relevant and liaise with the IHO Secretariat for the appropriate and report back to IRCC (Ref. Action IRCC9/36)	Members	IRCC10
25	5	to promote the UN-GGIM in their countries and identify the national representatives in the UN-GGIM and coordinate the maritime activities (Ref. Action IRCC9/39)	Members	Permanent
26	5	to review entries related to their region in IHO C-55 and P-5 (Yearbook) at least annually (Ref. Action IRCC9/44)	coastal States	Permanent

27	7	to provide feedback to the IRCC on the use of SDB with potential need for technical specifications, quality and standards	Chair	IRCC10
28	9	to consider participating as active members of the GEBCO Seabed 2030 project	coastal States	Permanent
29	9	to consider providing bathymetric data and support to the New Zealand based South and West Pacific Centre (SaWPaC), Regional Data Assembly and Coordination Centre (RDACC)	coastal States	Permanent
30	9	to check the DCDB data for checking existing chart content and eventually for chart production	coastal States	Permanent
31	10	to provide CB requests to the CB Coordinator	coastal States and PCAs	15 March 2018
32	10	to compile the SWPHC requests for support and submit to the CBSC16 in coordination with the Chair	CB Coordinator	1 April 2018
33	10	to consider adding capacity building training within contracts for hydrographic surveys	coastal States	Permanent
34	10	conducting hydrographic surveys in the region to consider offering opportunities for capacity building to the beneficiary countries	Members	Permanent
35	15	to check CATZOCs in order to identify ZOC U in their ENC and report back to the ICCWG	Members	SWPHC16