



# South West Pacific Hydrographic Commission (SWPHC)

## Report to IRCC 7

Mexico City, Mexico – June 2015

**Commodore B.K. Brace**  
**Chair SWPHC**  
**Hydrographer of Australia**



# Commission Membership

Members	Australia, Fiji, France, New Zealand, Papua New Guinea, Kingdom of Tonga, United Kingdom, United States of America
Associate Members	Cook Islands, Kiribati, Niue, Palau, <a href="#">Samoa</a> , Solomon Islands, Vanuatu
Intergovernmental Observer Organization	Secretariat of the Pacific Community (SPC)
Observers	New Caledonia
IHB Representative	President Robert Ward, Asst. Director Alberto Costa Neves
Notes	<ol style="list-style-type: none"> <li>1. At the 13<sup>th</sup> SWPHC Meeting <a href="#">Samoa became an Associate Member</a> by signing the Commission Statutes</li> <li>2. <a href="#">Vanuatu has applied for IHO membership</a>. (IHO CL 32/2015 dated 14 April 2015)</li> </ol>



# Meetings and Working Groups

- The **13th SWPHC Meeting** held in Rarotonga, Cook Islands on 25-27 February 2015 was **attended by more than 40 participants - representing all 8 Member States** of the Commission, 6 Associate Members, Observer States, international/regional organizations, industry and the IHB.
- Subject to confirmation, the next meeting will be held in Noumea, New Caledonia in late 2016.
- The **2nd SWPHC - CBWG Meeting** held in Wollongong, Australia, on 27-29 August 2014 was attended by Australia, New Zealand, United Kingdom and SPC. The meeting reviewed the ‘Current & Future’ matrix in regard to the status of SWP Pacific Island Countries and Territories wrt IHO CB Strategy, and also developed the outline for the 2-day ‘Technical Workshop on Hydrography Governance’ that was held in conjunction with SWPHC13 in the Cook Islands in February 2015.



# Status of IRCC Actions (relevant to SWPHC)

Action No	Action Item	Resp.	Action Taken/Status
IRCC6/01	Encourage the approval of pending applications for IHO membership	RHC Chairs	At SWPHC13 the Chair and IHO President emphasized importance and benefits of IHO membership, and encouraged MS to approve pending applications.
IRCC6/02	Continue to engage pending applicants in their region to encourage the ratification of the IHO Convention	RHC Chairs	Addressed at SWPHC13 and noted as an action item for remaining 2 MS in region.
IRCC6/03	Consider the participation of stakeholders at the RHC conferences	RHC Chairs	<a href="#"><u>Stakeholders invited to SWPHC13. IALA and industry attended and made useful contribution to discussions.</u></a>
IRCC6/05	Provide the IRCC Chair with progress reports on the relevant tasks in the IHO 2014 Work Programme (10)	RHCs and IRCC subsidiary organs	<a href="#"><u>Completed.</u></a> <a href="#"><u>1.) MSI Regional Workshop (Wellington, NZ, 25-27 August 2014 (2014 CBWP – P-03)</u></a> <a href="#"><u>2.) Solomon Islands National Hydrographic Capability Development (2014 CBWP – P12)</u></a>
IRCC6/08	Invite GEBCO Guiding Committee / Bathymetric Regional Project Chairs to attend corresponding RHCs meetings, aiming at strengthening collaboration with a priority on improving high resolution shallow water bathymetry at the regional level (6)	RHCs / GEBCO	GEBCO was invited to SWPHC13 Meeting, but was unable to attend.
IRCC6/09	Encourage MSs and representatives of industry and academia to promote and to work together to ensure that the best possible use is made of Satellite Derived Bathymetry (11)	RHC Chairs	At SWPHC13 Meeting UKHO provided an update of its SDB trials in the Caribbean
IRCC6/15	Provide material to the IHB to promote the achievements of IRCC bodies including CBSC, GEBCO	RHC Chairs and subsidiary bodies	Outcomes of CB events are reported to IHB. MS requested to provide relevant material to IHB.



# Status of IRCC Actions (relevant to SWPHC)

IRCC6/25	Share experience gained in developing the risk assessment tool, including activities related to engaging decision makers and donor agencies	SWPHC	<a href="#"><u>To be presented at IRCC7. Review of the hydrography risk assessment methodology completed. Ver. 2 being prepared for publication.</u></a>
IRCC6/28	Encourage National Hydrographers to invest in English language training in order to increase the chances of their candidates being selected to Cat A and Cat B training courses delivered in English	RHC Chairs	At SWPHC13 the IHB President communicated this requirement to all attendees.
IRCC6/40	Facilitate resolution of inconsistencies between paper charts and ENCs and between ENCs from different producers	RHC Chairs	Addressed in region through SWPHC-ICCWG
IRCC6/41	Consider opportunities to interact with stakeholders in 2014 and encourage participation in the relevant events	RHC	<a href="#"><u>All stakeholders invited to SWPHC meetings/CB activities and given ample opportunities to interact with the SWPHC membership.</u></a>
IRCC6/46	Encourage MSs in their respective regions to use the Risk Assessment methodology to establish Hydrographic Survey priorities	RHC Chairs	<a href="#"><u>Under its MFAT Aid Programme - Pacific Regional Navigation Initiative (PRNI) New Zealand will be conducting hydrographic risk assessments for Niue, Samoa, and Tokelau.</u></a> <a href="#"><u>LINZ is conducting risk assessments for NZ and the Ross Sea Region of Antarctica.</u></a>



# Capacity Building Activities

- **Activities completed since CBSC12:**

## **IHO CB Activities (CBWP)**

- MSI Regional Workshop (Wellington, NZ, 25-27 August 2014 (2014 CBWP–P-03)
- Solomon Islands National Hydrographic Capability Development (2014 CBWP–P12)
- Technical Workshop on Hydrography & Hydrographic Governance (2015 CBWP–P-02)

## **Non-IHO CB Activities**

- Regional Training Course in Basic Hydrography & Hydrographic Governance (IMO)
- Capacity Building in Hydrography for Ocean and Coastal Development (AusAID)
- Group Training Course on Hydrographic Survey (Japan International Cooperation Agency (JICA))
- South West Pacific Regional Hydrography Programme (SWPRHP) (Ministry of Foreign Affairs and Trade (MFAT) New Zealand Aid Programme)



# Capacity Building Activities

- **Activities not yet completed and new initiatives:**

## **IHO CB Activities (CBWP)**

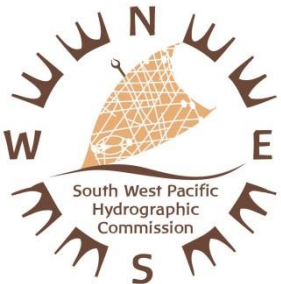
- **A-01 – Vanuatu Technical Implementation Visit - UKHO lead**  
(Planned for late September / early October 2015)
- **A-02 – Kiribati Technical Implementation Visit - UKHO lead**  
(Planned for late September / early October 2015)
- **P-06 – Tides & Water Levels Technical Workshop - AHS lead**  
(Planned for September-October 2015)
- **A-07 – Technical Assessment & Advice – Samoa - LINZ lead**  
(Propose that this be carried forward as part of 2016 CBWP)

## **IHO – NIPPON Foundation Chart Project**

- Of the 7 candidates selected for the 7th Chart Project Course (7 September – 18 December 2015) (CL35/2015 refers), the SWPHC was **successful with a candidate from Fiji**.

## **Non-IHO CB Activities**

- **New - MFAT New Zealand Aid Programme - Pacific Regional Navigation Initiative (PRNI)**  
(a **five-year NZ\$5M** development activity that will focus on navigation-related aspects of maritime safety – due to commence June 2015)



# SWPHC – Regional Awareness



## Aids to navigation: a must for Pacific Island countries

With nearly 90 per cent of all global trade being carried by sea, it is extremely important that aids to navigation (AtoNs) are available to mariners and meet minimum availability standards as recommended by the International Association of Lighthouse Authorities in IALA Aids to Navigation Guide (Navyguide).



Ships entering and leaving ports rely heavily on AtoNs



A buoy marker with missing topmark

As a party to the UN Convention on the Law of the Sea and the International Convention for the Safety of Life at Sea, Pacific Island countries are obliged to install, operate and maintain appropriate AtoNs to support shipping and maritime safety, which underpin regional trade and economic development.

A marine aid to navigation is defined by IALA's Navyguide (page 30) as 'a device or system external to vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic'. The Navyguide will be of interest and assistance to all organisations and individuals who either provide aids to navigation or are associated with their use.

Aids to navigation consists of maritime structures such as lighthouses, beacons and buoys, together with electronic AtoNs like radar transponders (racons) and automatic identification systems (AIS). These are intended to assist navigators in determining their position or safe course; warn them of dangers or recent obstructions to navigation; give advice about the location of a best or preferred route; and give advice about the location of vessel operating zones, activity areas and infrastructure.

Standards for new and existing aids to navigation are contained in the Navyguide. Categories for coastal and enclosed waters are set out as follows:

- **Category 1 – vital navigational significance**
- **Category 2 – important navigational significance**
- **Category 3 – necessary navigational significance**

Availability of aids to navigation is a function of both reliability and casualty response. Overall availability targets can be met only if both reliability and casualty response for a particular AtoN component/group of components conform to the availability category level determined by an authority, based on the IALA standards. It is recommended by IALA that availability should be calculated over no less a period than two years. Availability and reliability of AtoN for coastal and enclosed waters shall

be designed, constructed and maintained in a manner to meet the IALA availability performance criteria below:

- **Category 1 – availability = 99.9%** (this equates to 17.52 hours downtime per annum)
- **Category 2 – availability = 99.0%** (this equates to 3.65 days downtime per annum)
- **Category 3 – availability = 87.0%** (this equates to 10.95 days downtime per annum)

The absolute minimum level of availability is 95.0%.

### Identification

All marks in the system can be distinguished by: shape, colour, topmark and light. During daytime, the identification of aids to navigation is accomplished by observing: location, shape, colour scheme, auxiliary features or markings (name, number, etc.). During the night, the features of the aid to navigation's light both identify it and ascertain its purpose. There are three features to describe the light: colour, period and phase characteristic.

### IALA maritime buoyage systems

IALA has endorsed two maritime buoyage systems namely, Region A - IALA A covers all of Europe and most of the rest of the world, whereas Region B - IALA B covers only the Americas, Japan, Philippines and Korea. The main difference between Region A and B is the direction of buoyage when entering the port. Another way of looking at it is when the ship leaves the port, red AtoNs have even numbers, and green AtoNs have odd numbers. Under IALA A, red buoys mark the port side of the channel when returning from sea, whereas under IALA B green buoys mark the port side of the channel when sailing towards land. Red buoys have even numbers and red lights; green buoys have odd numbers and green lights. All of these aids to navigation are lateral markers that mark traffic channels, indicating where it is safe to travel.



## Navigation buoys/markers

There are six types of buoys/marker system.

<p><b>Cardinal</b> - The four cardinal buoys indicate the safe side of a danger with an approximate bearing. For example, the west cardinal buoy has safe water on its west and danger on its east side.</p>	<p><b>Lateral</b> - The location of lateral buoys defines the borders of clearly defined channels and indicates the buoyage direction.</p>
<p><b>Isolated danger</b> - This type of mark indicates the position of an isolated danger, unlike cardinal buoys, which indicate a direction away from the danger.</p>	<p><b>Safe water</b> - most horizontal striping spells 'danger'. This safe water buoy is vertically striped. It is found seaward of all other buoys and used to make landfall.</p>
<p><b>New wreck</b> - the emergency wreck marking buoy, is placed as close as possible to a new dangerous wreck.</p>	<p><b>Special marks</b> - Most of the time these yellow buoys indicate pipelines or areas used for special purposes.</p>

**Lead marks** - and lights are fixed markers that are laterally displaced to allow a mariner to navigate a fixed channel along the preferred route. In general, the rear mark is higher than the forward mark and set some distance apart. The mariner can understand that when 'open' (not one above the other) the ship needs to be navigated to 'close' the marks (no one is above the other) and be in the preferred line of the channel. In other words, you steer to keep the rear lead directly above the front lead.



### Coastal state obligations

Aids to navigation are part of a coastal state's obligation under the UN Convention on the Law of the Sea and the International Convention for the Safety of Life at Sea. In spite of being a state obligation, many small island states, including some Pacific Island countries, are finding the installation and in some cases the maintenance of aids to navigation a challenge, due to various resource constraints. The following are options adopted by some states to address their obligation, support maritime safety and facilitate trade:

- **private (funded entirely through taxes or fees)**
- **public (funded by the state)**
- **combination (public-private partnership).**

### For more information, contact:

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# SWPHC – Regional Awareness



## Outcomes of the 13<sup>th</sup> South West Pacific Hydrographic Commission

*Hydrography has always been one of the most transnational topics in international maritime law, because it involves the definition of the maritime boundaries of a state, and hence its sovereignty. This is why all states are called on to put in place hydrographic services, from a national, regional and international point of view.*

International maritime obligations regarding hydrography are set out in two main conventions: the United Nations Convention on the Law of the Sea (UNCLOS) and the International Convention for the Safety of Life at Sea (SOLAS). In particular, Chapter V of SOLAS, which entered into force in 2002, refers to the safety of all kinds of navigation, and applies to all vessels at sea. It requires governments to guarantee that vessels registered in that country maintain a sufficient level of safety. Chapter V also addresses seafarers, requiring their cooperation in taking into account potential dangers to navigation in order to avoid such dangers. Chapter V requires each contracting state to carry out hydrographic surveys, to update and share nautical charts and nautical publications, and to promulgate maritime safety information. Therefore, the base of international compliance requires an appropriate policy, a legislation framework and a strategic plan.

Cook Islands hosted the 13<sup>th</sup> South West Pacific Hydrographic Commission (SWPHC), in Rarotonga, between 25 and 27 February 2015. This was preceded by a two-day Technical Workshop on Hydrography and Hydrographic Governance, organised by the International Hydrographic Commission (IHO). Mr Robert Ward, President of IHO, attended the entire five days of meetings, together with delegates from Cook Islands, Fiji, Guinea, Kiribati, New Caledonia, Palau, Papua New Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu, as well as representatives of the Primary Charting Authorities in the Pacific: Australia (Australa Hydrographic Organisation), France (SHOM), New Zealand (LINZ) and the United Kingdom (United Kingdom Charting Authority). Members of the industry and of other international organisations (the Secretariat of the Pacific Community [SPC] and the International Association of Lighthouse Authorities [IALA]) were present, and provided presentations on a number of topics related to hydrography.

At the Technical Workshop a number of presentations were delivered on international obligations and the structure of hydrographic governance, as well as on the current status of hydrographic services within the Pacific. Member states of the SWPHC presented their National Reports during the 13<sup>th</sup> session, which reveal outcomes. In many Pacific Island countries and territories (PICTs), such as Vanuatu and Papua New Guinea, hydrography has recently become a priority, both for safety of life at sea improvements and for economic development. Vanuatu, in particular provides an example of a quick, practical and very successful incorporation of a hydrographic framework within the country.

All of the PICT members of the SWPHC acknowledged the



importance of having solid hydrographic governance in place. Accordingly, technical visits and capacity building projects have been scheduled, which will be carried out by the principal charting authorities, as well as by SPC's Geoscience Division.

During the 13<sup>th</sup> SWPHC, IALA presented the early stage of an agreement with SPC's Economic Development Division, for the delivery of internationally compliant aids to navigation (AtoN) services in the Pacific, as both organisations had recognised that this would be an essential element in safety of navigation in the Pacific region.

Discussions are ongoing regarding the host for the 14<sup>th</sup> SWPHC, but it has been agreed that Australia will continue to act as Chair. It has been determined that the logo for the 13<sup>th</sup> SWPHC – designed by SPC – will carry forward to the 14<sup>th</sup> SWPHC.

For more information, contact:

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# Tropical Cyclone Pam: Vanuatu

- Extensive damage was done by Tropical Cyclone PAM in March 2015, which included damage to wharfs and jetties, aids to navigation and marine vessels, in particular the smaller fleet.
- In accordance with IHO Resolution 1/2005, as amended, on IHO Response to Disasters, the SWPHC offered various resources and support to Vanuatu and other affected nations.
- The bulk of the initial response and assessment was provided by military forces, such as those provided by the Australian Defence Force (ADF), and by regional organisations, such as SPC.
- While there was an initial activity to attempt to coordinate the various hydrographic response activities, it was clear that apart from the urgent charting activities of the PCA (UKHO), the broader support of the SWPHC, in this case, was not specifically required as the focus was on saving lives and on returning community life to as normal a state as possible.



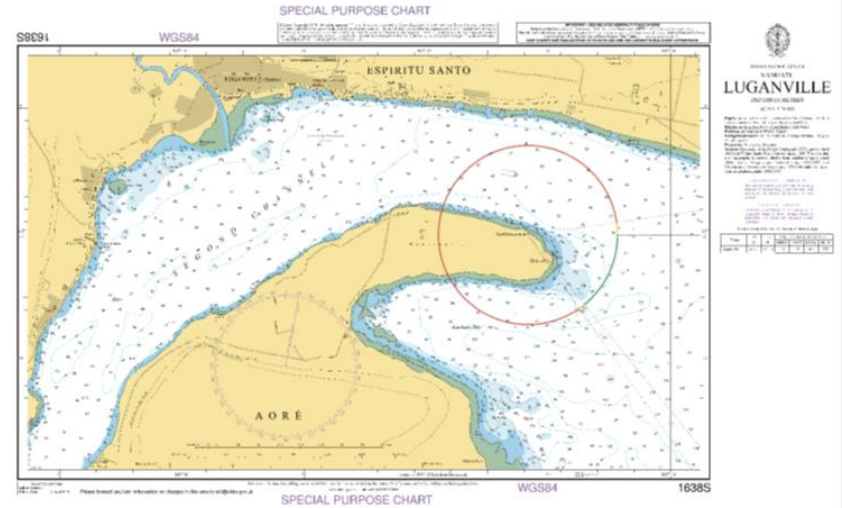
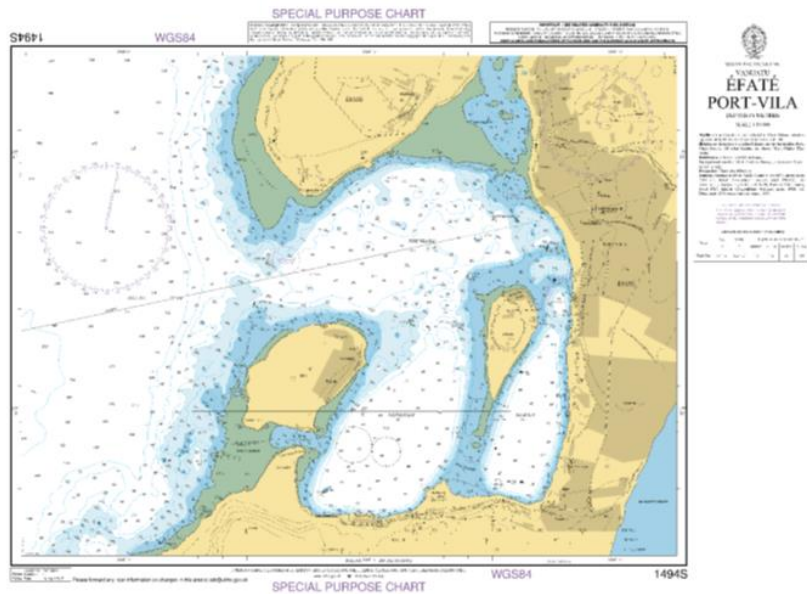
# Tropical Cyclone Pam: Vanuatu – UKHO Support

- The UKHO urgent charting activities, made a very valuable contribution by way of the following:
  - New editions of two Vanuatu ENC cells, GB501638 Northern Vanuatu - Espiritu Santo - Luganville and GB501494 Port Vila, were produced and made available to download free of charge and unencrypted from the IC-ENC website (<http://www.ic-enc.org/>), together with links to a range of free viewers. These ENCs will be superseded in due course as part of the normal update programme, and will be available through the usual channels.
  - Two Special Purpose charts were produced, 1638S and 1494S, and are available to download free of charge as PDFs from the Admiralty website (<http://www.admiralty.co.uk/Pages/Vanuatu-relief-effort-charts.aspx>). These Charts are not full standard paper charts and have been produced rapidly in direct response to the humanitarian crisis. As such not all of the normal validation procedures have been followed so users should act accordingly. Full updated paper charts will be published in due course as part of the normal update cycle.



# Tropical Cyclone Pam: Vanuatu – UKHO Support

- UKHO Special Purpose charts:





# Tropical Cyclone Pam: Vanuatu – Ongoing Support

- Now that support to Vanuatu is focussed on the ‘recovery’ phase, there are a range of activities to which SWPHC resources can be targeted.
- Via advise to the SWPHC Chair, UKHO is committed to continuing to work with SPC and Vanuatu to provide survey advice and support.
- SPC is proposing to run an in-country workshop with Vanuatu stakeholders and a practical exercise for Phase 1 capacity building – i.e. collection and circulation of nautical information, necessary to maintain existing charts. Other support activities may eventuate as the Vanuatu government further assesses needs and priorities.



# Vanuatu – CB Example

- Some of the activities in Vanuatu as an example of significant CB progress:
  - IHO Tech visit – July 2012 Vanuatu Govt accepts IHO report
  - National Maritime Boundary Committee tasked with overseeing implementation of IHO recommendations
  - Sub Committee on Nautical Charting and Maritime Safety Information established
  - Risk Assessment conducted using LINZ model
  - AusAID-funded, AHS trained SPC Cat B surveyor undertook NZ Govt-funded surveys with UKHO (PCA) surveyor
  - Chart improvements made by UKHO (PCA)
  - Vanuatu applied for IHO membership in March 2015
  - Legislation – Maritime Sector Regulatory Act (MSR Act) scheduled to be tabled in Parliament in November 2015



# Update to C-16

- During SWPHC13, a number of attendees indicated their respective governments had introduced, or were about to introduce, legislation or other form of regulation in respect of hydrography.
- Awareness of this growing list of national hydrography-related regulations would be of great benefit to states that wish to introduce such, or similar, regulations.
- Noting IHO publication C-16 (National Hydrographic Regulations) was last published in 2007, it is time for a new edition of C-16.
- To ensure the broadest listing of regulations, input should be sought through RHCs from IHO Members and non-Members.



# Actions required from IRCC7

- IRCC members are invited to:
  - **note** this report
  - **note** the high level of engagement and capacity building activity being undertaken in the SWPHC region
  - **note** SWPHC's significant collaborative and cooperative association with IMO, IALA, SPC and development agencies in moving forward with combined initiatives to raise awareness and to deliver on the ground.
  - **note** New Zealand's commitment to further conduct hydrographic risk assessments and chart remediation programs for a number of SW Pacific nations.
  - **note** Vanuatu's recent application for IHO membership.
  - **agree** the need to update C-16 and for the IRCC Chair to seek input from RHC Chairs, with a subsequent new edition to be published by IHB. Now that support to Vanuatu is focussed on the 'recovery' phase, there are a range of activities to which SWPHC resources can be targeted.