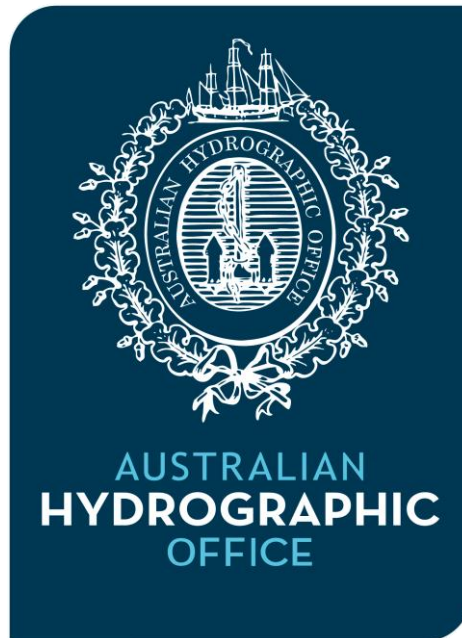


**17<sup>TH</sup> MEETING OF THE SOUTH WEST PACIFIC HYDROGRAPHIC  
COMMISSION (SWPHC17)  
Wollongong, Australia, 12-14 February 2020**



**NATIONAL REPORT FROM AUSTRALIA TO THE SWPHC17**

**1. Executive summary**

The Australian Hydrographic Office (AHO) is the Department of Defence agency responsible for the publication and distribution of nautical charts and other information required for the safety of ships navigating in Australian waters. The AHO is also responsible for the provision of operational surveying support and maritime Military Geographic Information (MGI) for Australian Defence Force (ADF) operations and exercises.

Key focus areas throughout 2019, and into 2020, include establishing a new data collection capability using a combination of industry and Defence assets, as well as a major review into future charting requirements, implementing the results of that review, and establishing new systems support arrangements.

2020 is the 100<sup>th</sup> anniversary of the Australian Hydrographic Service and during the year there will be several events to celebrate the occasion.

## 2. Surveys

### HydroScheme Industry Partnership Program

SEA 2400 Phase 1 – Hydrographic Data Collection Capability will introduce an effective combination of military and commercial maritime environmental data collection capabilities, driving fundamental change to how these services will be delivered by Defence into the future. To implement these changes the SEA2400-1 Project will bring into service two distinct capabilities: (i) the HydroScheme Industry Partnership Program (HIPP) will provide the capability needed for Defence to meet its obligations under national and international legislation; and (ii) the Strategic Military Survey Capability (SMSC) that will focus on meeting Defence's military requirements for data in the maritime environment.

Formal commencement of HIPP will occur with signing of deeds with industry partners on 26 Feb 20. Phase One will cover period 2020-2024.

### Current activity

Hydroscheme continues to be reviewed and targeted to best meet national and regional requirements. HydroScheme 2017-2020 was published in October 2017 and is available at [www.hydro.gov.au](http://www.hydro.gov.au). Hydroscheme 2021 is intended to be released in October 2020 for activities in FY21-22. The document will change from a static document to dynamic webpages on the [www.hydro.gov.au](http://www.hydro.gov.au) website.

- Laser Airborne Depth Sounder (LADS). LADS conducted a range of tasks in 2019 including Cape Northumberland (SA), Stewart Is (NZ on behalf of LINZ), Macquarie Is (TAS), Cape Leeuwin and Esperance (WA) and tasks within the Great Barrier Reef (QLD). The LADS Flight was decommissioned in November 2019, having been in service since 1991 and operational since 1993. In that time the LADS system was installed in two aircraft, initially a Fokker F-27 'Friendship' then a DeHavilland Dash 8. Two major and several minor system versions were used throughout the Unit's existence.
- Hydrographic Ships (HS) LEEUWIN and MELVILLE. *Leewin* and *Melville* completed a number of tasks focussed on improving charting quality for the region. These included surveys in Honiara and Bina Harbour (Solomon Is), Manus Island and Dampier Strait (PNG) and a co-operative survey with survey personnel from Tonga in Nuku'alofa.
- Survey Motor Launch (SML) MERMAID, PALUMA, SHEPPARTON and BENALLA. The SMLs spent much of 2019 working in Papua New Guinea and Solomon Islands. Surveys included Manus Island, Kitava Island, Dampier Strait and Umboi Island in PNG. *Benalla* and *Shepparton* completed tasking near Gizo in Solomon Islands.

## 3. Nautical Charting

The AHO is the Primary Charting Authority (PCA) for two Pacific Island Countries, as well as the national authority for Australia and its territories. The total portfolio includes:

Nation	Paper Charts	ENCs	Total
Papua New Guinea	78(*)	159	237
Solomon Islands	15	41	56
Australia	369	691	1060
<b>Total</b>	<b>462</b>	<b>891</b>	<b>1353</b>

\*A project is underway to rebrand PNG charts and ENC with a PNG/ PG prefix. To date 39 paper charts out of 78 have been rebranded and published.

#### a) Electronic Navigation Charts

There is a total of 891 ENC cells published by the AHO. These include AU and SB ENC. ENC covering Papua New Guinea waters will be progressively updated and reissued as 'PG' ENC, commencing in late 2020 once the reissue of the paper charts is complete.

The AHO has moved from a trial program to full production of Navigation Purpose 6 ENC for selected ports. The product is referred to as a High Density bathymetric ENC (HDbENC), reflecting content that is substantially limited to high density bathymetry, and not extensive additional infrastructure detail that is also possible in this layer. Each ENC covers a segment of a dredged channel or manoeuvring area, and aligned to areas with different survey frequencies within the port. This allows for full 'update by replacement' as new surveys are received, without the need to merge new and existing data.

Each ENC is shaped to fit the waterway, clipped to an agreed polygon and includes 1m or sub-1m depth contours. Aids to Navigation and sub-surface infrastructure are then added from the AHO's database. The AHO has developed and refined a business case template that captures specific user needs, and works with individual ports to ensure each HDbENC meets the stated requirement. The resulting ENC is then made available to both port pilots for use in Portable Pilotage Units, and to ships for use in ECDIS. In doing so, the AHO is contributing to effective pilot / crew Bridge Resource Management.

Australia ENCs published since the SWPHC16 Meeting				
Australia	Solomon Islands	PNG	Antarctica	INT
Total: 1214 New ENC: 0 NE ENC: 99 Updates: 1115	Total: 44 New ENC: 0 NE ENC: 8 Updates: 36	Total: 45 New ENC: 0 NE ENC: 12 Updates: 33	Total: 5 New ENC: 0 NE ENC: 3 Updates: 2	Total: 9 New ENC: 0 NE ENC: 5 Updates: 4

**b) ENC Distribution**

Australia is a member of IC-ENC and distributes all Australian ENC's through IC-ENC Australia.

View the IC-ENC World Catalogue here:

<http://geosig.hidrografico.pt/flexviewers/ICENC/>

Australia also has a national ENC service, known as 'AusENC'. This supports vessels operating exclusively within Australian, Solomon Islands and Papua New Guinean waters, and is priced to encourage use by domestic vessel operators, including coastal and port pilots. The AHO has also been assisting LINZ at a technical level to establish their own local ENC service. It is intended that NZ ENC will be available within the AusENC service once the NZENC service is operating, to support cross-Tasman operations.

For more information visit the AHO website at:

[www.hydro.gov.au/prodserv/digital/ausENC/enc.htm](http://www.hydro.gov.au/prodserv/digital/ausENC/enc.htm)

**c) Raster Nautical Charts**

The AHO does not produce RNC. RNC are derived by the UKHO from UKHO copies of paper charts produced by the AHO. Only those charts adopted by the UKHO are available as RNC.

**d) INT paper nautical charts (1:1 500 000 and smaller)**

A review is currently underway regarding future requirements for INT paper nautical charts. A number have been identified as suitable for withdrawal without replacement. The intention is that, for most areas, coverage will remain available at 1:3.5M only. One 1:10M and one 1:1.5M chart are likely to remain from within the existing portfolio. The intention is that remaining INT paper charts will be the minimum necessary to:

- Facilitate route planning and monitoring in areas not fully covered by the coastal series (e.g. offshore reefs, neighbouring countries and Antarctica).
- Display maritime claims (EEZ and Continental Shelf limits).

**e) Paper Nautical Charts**

There are currently 462 paper nautical charts produced and maintained by the AHO as well as 4 index charts. Detailed information of the full Australian chart portfolio can be found on the AHO website at

<http://www.hydro.gov.au/prodserv/paper/auspapercharts.htm>

**Medium and large scale paper nautical charts**

In August 2019 the AHO held a workshop on the future of nautical charting. This included a wide variety of maritime industry representatives, including representatives from the Australian Maritime Safety Authority and PNG National Maritime Safety Authority. At this meeting it was highlighted that demand for paper nautical charts has fallen to 16% of equivalent annual demand for ENC, yet paper charts absorb 60% of total cartographic effort in keeping ENC and paper charts up to date.

Following this consultation, as well as an online questionnaire to domestic commercial vessel operators and discussions with the yachting community, Australian paper nautical charts will be rationalised based upon the following principles from within the existing portfolio throughout 2020:

- Coastal areas – either 1:150,000 or 1:300,000, but not both
- Ports and approaches – coverage at a single scale for each area, generally in the range 1:25,000 to 1:50,000. Remaining charts will be sufficient for use as a back-up to ECDIS by permitting larger vessels to plan pilotage, and reach a pilot boarding ground, anchorage or place of refuge without assistance, noting that in most ports they are required to embark a marine pilot. Remaining paper charts will carry a note in areas where larger scale ENC coverage is available.
- Over 130 paper nautical charts considered to be no longer required will be progressively withdrawn by August 2020 once any necessary detail has been transferred to remaining charts. Most of those being withdrawn are those that, due to scale and location, require the largest proportion of updating effort – reducing the paper chart portfolio by one third will result in a two thirds reduction in the number of paper Notices to Mariners required. The list of coastal and large scale charts for withdrawal was released to the public via Notice to Mariners on 7 Feb 2020. Intentions regarding INT charts will be announced separately once finalised.

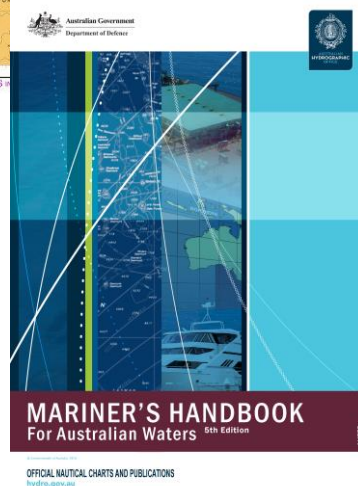
Paper nautical charts covering Papua New Guinea and Solomon Islands will remain unaffected.

**Australia Paper Charts published since the SWPHC16 Meeting**

<b>Australia</b>	<b>Solomon Islands</b>	<b>PNG</b>	<b>Antarctica</b>	<b>INT</b>
Total: 273	Total: 9	Total: 33	Total: 3	Total: 18
NC: 0	NC: 1	NC: 25	NC: 0	NC: 0
NE: 13	NE: 1	NE: 0	NE: 1	NE: 1
Updates: 260	Updates: 7	Updates: 8	Updates: 2	Updates: 17

Solomon Islands

- New Chart - SLB108 – Vanguna Island – Mbili Passage to Hele Bar –Published July 2019.



Australia Paper Charts scheduled for publication in 19/20 FY				
Australia	Solomon Islands	PNG	Antarctica	INT
Total: 22	Total: 4	Total: 46	Total: 3	Total: 0
NC: 0	NC: 0	NC: 44	NC: 0	NC: 0
NE: 22	NE: 4	NE: 2	NE: 3	NE: 0

**f) Other charts**

Nil.

**g) Problems encountered**

A low level of resistance to withdrawing many large scale and coastal paper charts has been encountered. This is being managed through continued consultation and engagement with stakeholders.



#### 4. New publications & updates

The Mariner's Handbook for Australian Waters AHP20 5<sup>th</sup> Edition (formerly the Seafarer's Handbook) was published on 20<sup>th</sup> September 2019. In addition to the printed publication, this is offered as a free digital download for the first time (hydro.gov.au). Both version are maintained by Notices to Mariners. The chapter regarding accuracy of ENC has also been made available separately.

Total sales and downloads are already in excess of 20,000. Notably, the availability of a free digital download appears to have significantly increased sales of the printed version.

The AHO's Fact Sheet series has been substantially updated. Generally written in a style suitable for domestic commercial vessel operators, these may provide a useful source of information in educating mariners within this industry segment.

The AHO is investigating spatial capture of text-based information. This will initially be limited to port and VTS calling procedures, with the intention that this will be included in an S-100 series product, and may be embedded in existing ENC.

Similarly, the AHO is investigating an upgrade path for AusTides. It considers the most likely area of interest will be localised high density bathymetry, coupled with either real-time transmitted tides, or tidal time and height files generated by a suitable tidal application.

Tide tables for 2020 were published in late 2019 for Australia (including Solomon Islands and Papua New Guinea) and a separate publication for Solomon Islands. From 2021 it is intended a separate Papua New Guinea National Tide Tables will also be published.

#### 5. Maritime Safety Information (MSI)

Australia is the coordinator for NAVAREA X, which extends from the Antarctic coast to the equator and from 080E to 170E longitudes. The Self-Assessment report for NAVAREA X for the period July 2018 to June 2019 was submitted to the IHO World-Wide Navigational Warning Service (WWNWS) Sub-Committee Meeting (WWNWS11) held in Halifax, Canada on 26 to 30 August 2019. A copy of the MSI Self-Assessment report provided to the WWNWS11 meeting has been submitted for consideration under the SWPHC17 Meeting agenda item 12 (*doc. SWPHC17-12A*).

Current NAVAREA X MSI can be obtained from the AMSA website at:

<http://www.amsa.gov.au/search-and-rescue/about-the-gmdss/msi-information/msi-email/index.asp>

Detailed information about MSI to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annex B.

#### 6. C-55 C-55 updates are outlined in Annex B.

## 7. Capacity Building

### a) Training received, needed, offered

#### Maritime Geospatial Training Centre (MGTC)

In 2019 the RAN Hydrographic School, located at HMAS Penguin in Sydney, was renamed the Maritime Geospatial Training Centre (MGTC). The name change was due to the incorporation of Military Meteorological Training. MGTC provides training courses in Hydrographic surveying for officers and sailors from Australia and the region under the Defence Cooperation Programme and consists of three levels: basic, intermediate and advanced level.

In 2019 the advanced level H2 course consisted of students from Australia (6), Indonesia (1), Malaysia (1) and New Zealand (2).



2019 H2 Course participants

Two Basic Courses and one Intermediate Course were conducted for RAN sailors in 2019; where 22 students attended the Basic Courses (14 weeks duration) and 10 students attended the Intermediate Course (8 weeks duration).

#### AHSCP Certification Scheme for Hydrographic Surveyors

The Hydrographer of Australia chairs the Australasian Hydrographic Surveyors Certification Panel (AHSCP) and the AHO provides the secretariat services. The recognition of Training Courses and Certification Schemes by the \*IBSC is valid for a 6-year period. The AHSCP scheme for certifying hydrographic surveyors was initially granted recognition by the IBSC in 2012. Following a submission made early last year the IBSC recognised the AHSCP Certification Scheme for a further 6 years (2019-2024). The documentation submitted was aligned to the current Standards of Competence for Hydrographic Surveyors (S-5A and S-5B) as compared to the previous submission which used the S-5 (version 11.0.1 – May 2011) as its reference assessment of competence. (\*IBSC - International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers)



## 8. Oceanographic activities

### a) Tide gauge networks

Two permanent tide gauge networks are operated in the region by the Bureau of Meteorology.

The Australian Baseline Sea Level Monitoring Array currently consists of 16 permanent gauges monitoring sea level and ancillary meteorological parameters around the Australian Coastline, including one at Cocos Island. The locations of the gauges are shown in **Figure 1** (below).

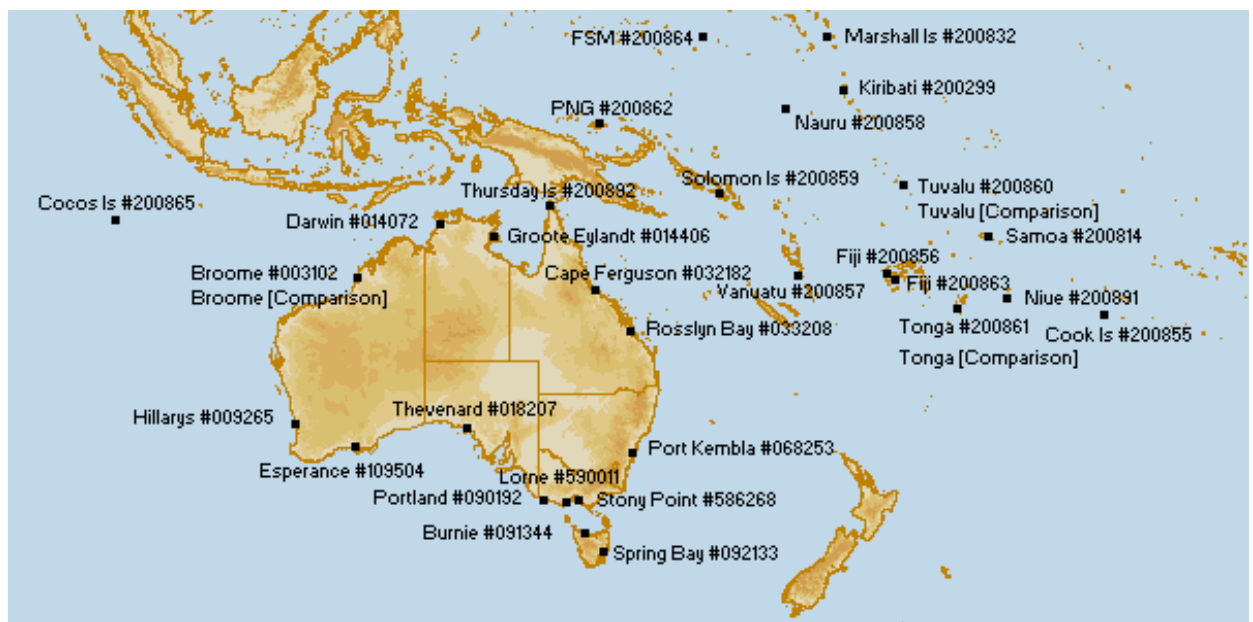
Monthly reports are published by the Bureau and can be located on their website at:

[www.bom.gov.au/oceanography/projects/abslmp/reports.shtml](http://www.bom.gov.au/oceanography/projects/abslmp/reports.shtml)

The Pacific Sea Level Monitoring Project currently consists of 14 permanent gauges monitoring sea level and ancillary meteorological parameters throughout the South Pacific region. The locations of the gauges are shown in **Figure 1** (below).

Monthly reports are published by the Bureau and can be located on their website at:

<http://www.bom.gov.au/pacific/projects/pslm/index.shtml>



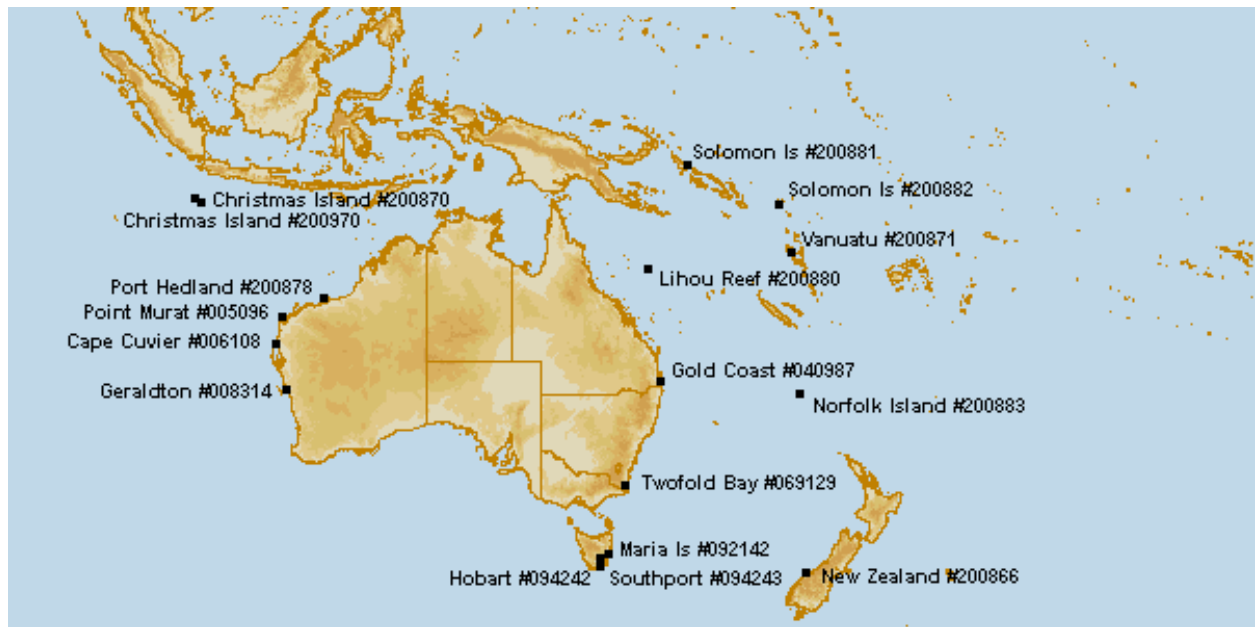
**Figure 1: Permanent tide gauge network operated by the Bureau of Meteorology, including the Australian Baseline Sea Level Monitoring Array (16 sites) and Pacific Sea Level Monitoring Project (14 sites).**

The permanent tide gauges were upgraded in 2009-2010 (Baseline) and 2011-2013 (Pacific) with modernised data loggers, real-time satellite communications and additional radar-type water level sensors. Co-located comparison stations were installed at Broome and Tuvalu in 2017 and at Tonga in 2018 in preparation for becoming the permanent operational tide gauges at those locations due to wharf refurbishments.

The Australian Tsunami Warning System (ATWS) is supported by the 30 permanent Australian and Pacific tide gauges (**Figure 1**) as well as an additional network of 17 radar-type tide gauges at four Pacific and 13 Australian sites as shown in **Figure 2**. An

array of six deep-ocean tsunameters (DART buoys) brings the Australian tsunami-monitoring network to 53 sites in all.

The primary purpose of these additional stations is for the detection of tsunami with real time data made available to support the operations of the Pacific Tsunami Warning System. Further information about the Australian Tsunami Warning System is available at <http://www.bom.gov.au/tsunami/about/atws.shtml>



**Fig. 2: Additional ATWS radar gauges (17 sites) that used in conjunction with the permanent tide gauge network for monitoring tsunamis in the Australian region.**

#### **b) New equipment**

Surveyable mounting of the secondary radar water level sensors and integration of mounting pillars for continuous GNSS/GPS equipment on the tide gauge infrastructure are slowly being introduced into the network, while acoustic water level sensors remain the primary sensor at most sites.

#### **c) Problems encountered**

Generally, the gauges operate autonomously in between calibration and servicing on a routine 18-month schedule, with average data return from the permanent tide gauge network exceeding 95%. The variety of day-to-day problems that do arise include power supply, data logger, data communications and sensor malfunctions, which are managed either remotely, by voluntary first in maintenance support or through contingency field trips.

The Niue tide gauge and geodetic monitoring site was completely destroyed by cyclone Tino which hit on January 17th 2020. **(Figures 3 and 4)**

It is intended that reconstruction of a replacement tide gauge and GNSS sensor together with housings will be completed before the end of 2020.



**Figure 3** Niue wharf with tide gauge hut and mast in left foreground and tide gauge mount behind the red roofed structure in August 2019



**Figure 4.** Photo of the tide gauge hut and mast, GNSS sensor and tide gauge mount after TC Tino 17<sup>th</sup> January 2020.

## 9. Other activities

### a) Participation in IHO Working Groups

	Meeting	Chair/Vice Chair	Member/ Associate/ Observer
	Council		M
HSSC	Hydrographic Services and Standards Committee		M
NCWG	Nautical Cartography Working Group		M
ENCWG	ENC Working Group		M
DQWG	Data Quality Working Group		M
MSDIWG	Marine Spatial Data Infrastructure Working Group		M
NIPWG	Nautical Information Provision Working Group		M
HSPT	S-44 Hydrographic surveys Project Team		M
TWCWG	Tidal, Water Level and Currents Working Group		M
WEND	World-Wide Electronic Navigational Chart Database		M
ABLOS	Advisory Board on the Law of the Sea		O
CSBWG	Crowd Sourced Bathymetry Working Group		O
S-100	S-100 Working Group		M
S-101	Working Group		M
S-104	Development Group		M
S-111	Development Group		M
S-121	Development Group		M
S-129	Development Group		M
S-412	Development Group		M
IRCC	Inter Regional Coordination Committee		M
CBSC	Capacity Building Sub-Committee		
HCA	HCA Hydrographic Commission on Antarctica		M
NIOHC	North Indian Ocean Hydrographic Commission		A
SAIHC	Southern Africa and Islands Hydrographic Commission		O

SWPHC	South-West Pacific Hydrographic Commission	Chair	M
EAHC	East Asian Hydrographic Commission		O
WWNWS	World-wide Navigational Warning Service Sub-Committee		M
FIG/IHO/ICA	International Board on Standards of competence for Hydrographic Surveyors and Nautical Cartographers		M
GEBCO	Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of Oceans (GEBCO)		M
IHO-IOC GGC	GEBCO Guiding Committee		M
SCUFN	GEBCO Sub Committee on Undersea Feature Names		M

## b) Meteorological data collection

Australia, through the Bureau of Meteorology, collects meteorological data at sea via a number of methods:

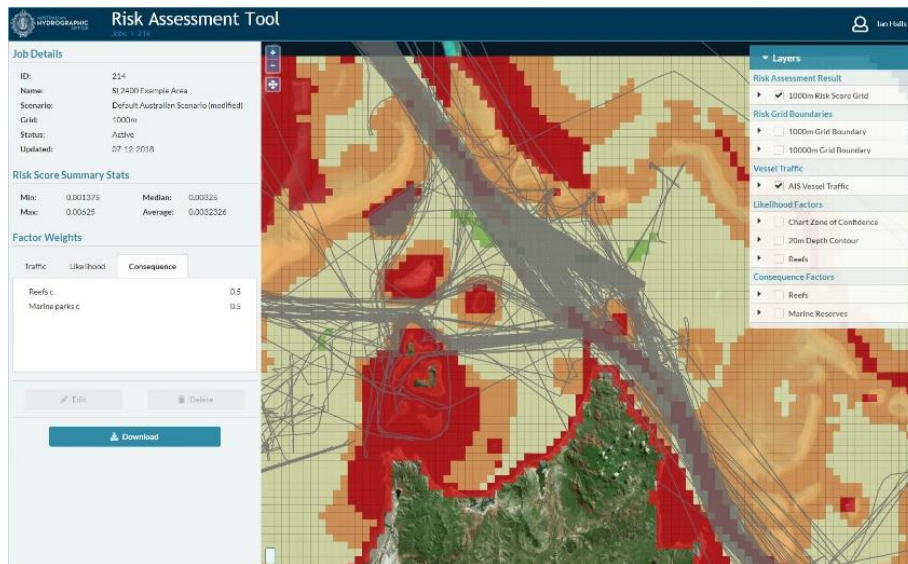
- 55 voluntary ships recording and reporting weather observations
- 4 voluntary ships performing Expendable Bathythermograph (XBT) sampling
- 2 moored buoys measuring waves
- 1 moored buoy measuring air pressure and sea surface temperature
- 43 drifting buoys recording air pressure and sea surface temperature
- 4 ARGO profiling floats per annum contributed to the ARGO Australia fleet (total: 405 floats currently active) profiling sea temperature and salinity.

IMO recently released an updated version of MSC 1293 encouraging participation by voluntary observing ships in the collection of meteorological data. Contact the Bureau of Meteorology for further information on the programme.

## c) Use of risk to support survey and chart updating priorities

### Survey Planning Risk Assessment Tool

The AHO has developed a risk assessment tool based on the methodology adopted by LINZ. The source code for the risk assessment was supplied by LINZ to the AHO and the code has been re-developed into open source code and tools on an Amazon Web Service (AWS) cloud instance. The first phase of development incorporated AIS data (supplied monthly by AMSA) and geospatial data overlays to determine a graphical risk display (see image - Cape Melville, QLD). The user has the flexibility to tweak Traffic, Likelihood and Consequence factor weights to develop Use Case Scenarios. Future development will include increasing the number of geospatial themes, scenario library handling and feedback from AHO users.



## 10. Conclusions

AHO continues to prepare for the introduction of HIPP with upgrades to systems and processes, workflow and data management protocols.

Australian Navy ships will continue to spend considerable time deployed in the South Pacific region.



Input to the IHO Publication P-5 (*Yearbook*)

Country: AUSTRALIA

Organization: Australian Hydrographic Office

<b>Contact information/ Informations de contact / Información de contacto</b>	
-National Hydrographer or equivalent -Directeur du service hydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Post: Hydrographer of Australia – <b>Director-General Hydrography, Meteorology and Oceanography (DGHM)</b> Name: Commodore Fiona FREEMAN, RAN Postal address: 8 Station St, Wollongong, NSW 2500, Australia Tel: +61 (0) 2 4223 6500 Fax: +61 (0) 2 4223 6599 Email: international.relations@hydro.gov.au
-Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	<a href="mailto:International.relations@hydro.gov.au">International.relations@hydro.gov.au</a>
-Web site -site web -sitio web	<a href="http://www.hydro.gov.au">http://www.hydro.gov.au</a>
<b>Country information / Informations sur le pays/ Información sobre el país</b>	
-Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	Tonnage: <b>1,684, 678</b> Date: <b>October 2019</b>
-National day -Fête nationale -Fiesta nacional	26 January
-Date of establishment and Relevant National Legislation -Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional pertinente	Hydrographic Office, R.A.N – Established 01 October 1920 ; Commonwealth Naval Order 275 dated 14 December 1920.  Navigation Act 2012

-Date first joined IHO -Date d'adhésion à l'OHI -Fecha de adhesión a la OHI	21/06/1921
-Date ratification Convention -Date de ratification de la Convention -Fecha de ratificación de la Convención	25/11/1968
-Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	Included under “British Empire” with the U.K. from 1921.
<b>Agency information/ Information sur l'agence/ Información sobre la agencia</b>	
-Top level parent organisation -Organisme mère -Organización asociada de nivel superior	Dept of Defence
-Principal functions of the organisation or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o departamento	Hydrographic and bathymetric surveys. Notices to Mariners Nautical charts. Tides, Tidal Streams, Currents Maritime Military Geospatial Products and Services. Australian Hydrographic Data Archive. PCA for Papua New Guinea and Solomon Islands
-Annual operating budget -Budget annuel -presupuesto anual	
-Total number of staff employed -Effectifs totaux -Número total de personal empleado	

-Number of INT charts published -Nombres de cartes INT publiées -Número de cartas INT publicadas	40			
-Total number of paper charts published-Nombre total de cartes papier publiées-Número total de cartas de papel publicadas	413 Aus , 15 SLB and 34 PNG charts = 462 total			
-Number of ENC cells published -Nombres de cellules ENC publiées -Número de células ENC publicadas	850 AU cells and 41 SB cells = 891 total			
-Number of Other charts -Nombre d'Autres cartes -Número de Otras cartas	2 AU and 2 SB Index Charts = 4 total			
-Type of publications produced -Type d'ouvrages produits -Tipo de publicaciones producidas	Product Index – searchable website tool  Fortnightly Notices to Mariners (AHP18)  Seafarers Handbook for Australian Waters (AHP20) – printed and digital  Australian National Tide Tables (AHP11)  Australian Electronic Tide Tables ('AusTides' - AHP114)  Australian Chart and Publication Maintenance Handbook 4th Edition (AHP24)  Maritime Gazetteer of Australia (geographic names as shown on Australian paper nautical charts) – searchable website tool			
-Detail of surveying vessels/ aircraft -Détail des bâtiments hydrographiques / aéronefs	-Name -Nom -Nombre	-Displacement -Déplacement - Desplazamiento	-Date Launched -Date de mise en service -Fecha de botado	-Number of crew -Nombre de l'équipage - Tripulación

-Detalle de los buques hidrográficos / aeronaves	HMAS LEEUWIN	2550	1997	56
	HMAS MELVILLE	2550	1998	56
	HMAS PALUMA	380	1989	13
	HMAS MERMAID	380	1989	13
	HMAS SHEPPARTON	380	1989	13
	HMAS BENALLA	380	1990	13
	LADS Unit Dash 8 (modified)	Aircraft	1993	9-(navy)+5 (contractor)
	Maritime Geospatial Warfare Unit (MGWU)	Vessel of Opportunity	Early 1980s	16
	ASV WYATT EARP	6.3	Handed over to RAN in 1992	
-Other information of interest				

Input to the IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*)

Country: **AUSTRALIA**

C-55 Summary for:				Comments on Charts:  Remove current notes
Country:	AUSTRALIA			
Country Iso Code:	AU – AUS - 036			
Country SubCode:				
INT Region:	L			
Country/Depend:				
Last updated:	30 January 2019			
Provided by:	Australian Hydrographic Office			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys:
INT	100	100		
RNC	0	0	0	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m	35	20	45	
> 200m	10	5	85	

MSI	Y/N	Comments on MSI:
Local warning	YES	Promulgated by Port Authorities
Coastal warning	YES	Promulgated by SafetyNET & CRS Network
Nav warning	YES	Promulgated by SafetyNET & NAVAREA X
Port warning	YES	Promulgated by Port Authorities
GMDSS	Y/N	Comments on GMDSS:
Master Plan	YES	
Area A1	NO	
Area A2	NO	
Area A3	YES	Australia

NAVTEX	NO	
SafetyNet	YES	Australia – Coastal Warnings provided via SafetyNET

Country: *AUSTRALIA – Christmas Island*

C-55 Summary for:				Comments on Charts:
Country:	AUSTRALIA			
Country Iso Code:	AU – AUS - 036			
Country SubCode:				
INT Region:	L			
Country/Depend:				
Last updated:	30 January 2019			
Provided by:	Australian Hydrographic Office			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys:
INT	100	100		
RNC	0	0	0	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	
Status of surveys	Adequacy (%)	Resurvey (%)	No survey (%)	
0-200m	3	97	0	
> 200m	1	0	99	

MSI	Y/N	Comments on MSI:
Local warning	YES	Harbour Master
Coastal warning	NO	
Nav warning	YES	NAVAREA X
Port warning	YES	Harbour Master
GMDSS	Y/N	Comments on GMDSS:
Master Plan	NO	No requirement
Area A1	NO	
Area A2	NO	



Area A3	YES	Australia / Japan
NAVTEX	NO	
SafetyNet	YES	Australia / Japan

*Country: AUSTRALIA – Cocos (Keeling) Islands*

C-55 Summary for:				Comments on Charts:
Country:	AUSTRALIA			
Country Iso Code:	AU – AUS - 036			
Country SubCode:				
INT Region:	L			
Country/Depend:				
Last updated:	30 January 2019			
Provided by:	Australian Hydrographic Office			
				Comments on Surveys:
Chart coverage	Passage (%)	Coastal (%)	Port (%)	
INT	100	100		
RNC	0	0	0	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	
Status of surveys	Adequacy (%)	Resurvey (%)	No survey (%)	
0-200m	1	0	99	
> 200m	4	0	96	

<b>MSI</b>	<b>Y/N</b>	<b>Comments on MSI:</b>
Local warning	YES	
Coastal warning	NO	
Nav warning	YES	
Port warning	YES	
<b>GMDSS</b>	<b>Y/N</b>	<b>Comments on GMDSS:</b>
Master Plan	NO	No requirement
Area A1	NO	
Area A2	NO	
Area A3	YES	Australia
NAVTEX	NO	

SafetyNet	YES	Australia
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*Country: AUSTRALIA – Heard Island (H)*

C-55 Summary for:				Comments on Charts:
Country:	AUSTRALIA – Heard Island (H)			
Country Iso Code:	AU – AUS - 036			
Country SubCode:				
INT Region:	H			
Country/Depend:				
Last updated:	30 January 2019			
Provided by:	Australian Hydrographic Office			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys:
INT	100	100	100	
RNC	0	0	0	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m	1	0	99	
> 200m	10	0	90	

<b>MSI</b>	<b>Y/N</b>	<b>Comments on MSI:</b>
Local warning	<b>NO</b>	
Coastal warning	<b>NO</b>	
Nav warning	<b>YES</b>	
Port warning	<b>NO</b>	<b>Australian Antarctic Division would provide on request</b>
<b>GMDSS</b>	<b>Y/N</b>	<b>Comments on GMDSS:</b>
Master Plan	<b>NO</b>	<b>No requirement</b>
Area A1	<b>NO</b>	
Area A2	<b>NO</b>	
Area A3	<b>YES</b>	
NAVTEX	<b>NO</b>	

SafetyNet	YES	South Africa – NAVAREA VII

Country: *AUSTRALIA – Macquarie Island (L)*

C-55 Summary for:				Comments on Charts:
Country:	AUSTRALIA			
Country Iso Code:	AU – AUS - 036			
Country SubCode:				
INT Region:	L			
Country/Depend:				
Last updated:	30 January 2019			
Provided by:	Australian Hydrographic Office			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys:
INT	100	100		
RNC	0	0	0	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m	1	0	99	
> 200m	30	0	70	

MSI	Y/N	Comments on MSI:
Local warning	NO	
Coastal warning	NO	
Nav warning	YES	Australia – NAVAREA X
Port warning	YES	Part of the Australian state of Tasmania
GMDSS	Y/N	Comments on GMDSS:
Master Plan	NO	No requirement
Area A1	NO	
Area A2	NO	
Area A3	YES	Australia
NAVTEX	NO	
SafetyNet	YES	Australia



*Country: AUSTRALIA – Norfolk Island*

C-55 Summary for:				Comments on Charts:
Country:	AUSTRALIA			
Country Iso Code:	AU – AUS - 036			
Country SubCode:				
INT Region:	L			
Country/Depend:				
Last updated:	30 January 2019			
Provided by:	Australian Hydrographic Office			
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys:
INT	100	100		
RNC	0	0	0	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			100	
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m	10	0	90	
> 200m	1	0	99	

MSI	Y/N	Comments on MSI:
Local warning	YES	Harbour Master
Coastal warning	NO	
Nav warning	YES	NAVAREA X
Port warning	YES	Norfolk Island Administration is in contact with the AHO
GMDSS	Y/N	Comments on GMDSS:
Master Plan	NO	No requirement
Area A1	NO	
Area A2	NO	
Area A3	YES	Australia

NAVTEX	NO	
SafetyNet	YES	Australia

See Separate document SWPHC16-12A (NAVAREA X)