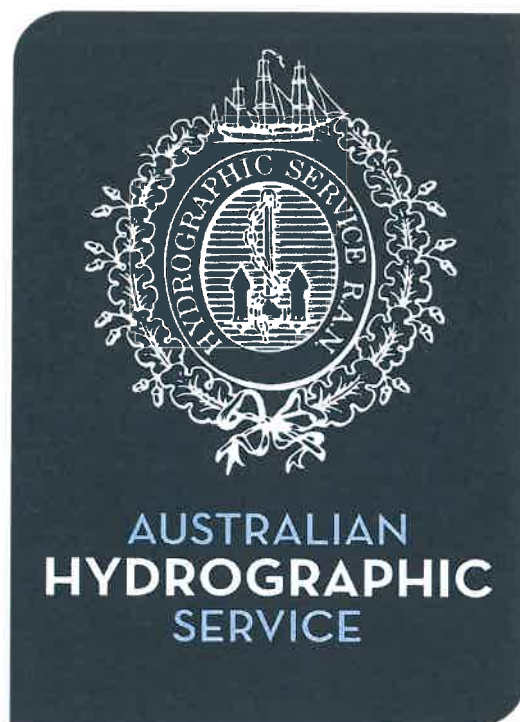


INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)

SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION (SWPHC)

13TH Meeting – Rarotonga, Cook Islands 25th-27th February 2015



**AUSTRALIAN HYDROGRAPHIC SERVICE
NATIONAL REPORT**

13th SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION (SWPHC) MEETING

Rarotonga, Cook Islands, 25-27 February 2015

AUSTRALIAN REPORT

1. GENERAL

The focus of the Australian Hydrographic Service (AHS) throughout 2014 and in early 2015 has been on improving the systems and processes that underpin Australia's delivery of hydrographic services. Workforce pressures and the need to refresh supporting management and production systems necessitated a holistic review of activities within the Australian Hydrographic Office (AHO). The review and the implementation of new systems is progressing very well, but has only been possible by restricting internal production activities to 'maintenance only', i.e. no new products.

The Australian *Navigation Act 2012*, which came into force in 2013, highlights specifically the role of the Royal Australian Navy (RAN) in providing the hydrographic services necessary for Australia to meet its obligations under the SOLAS Convention. While the nature of the activities undertaken by the AHS, as part of the RAN, has not changed, the political and strategic impact of the new *Navigation Act* has been far-reaching.

2. SURVEYS

2.1 Coverage of New Surveys

Since the last Commission meeting in November 2013, the AHS has tied its survey efforts in the northern sector of our charting responsibility to other operational tasking. The Hydrographic Ships (HS) have conducted lower priority surveys in deeper waters on opportunity basis and survey work in the approaches to Townsville. The Survey Motor Launches (SML) and the Laser Airborne Depth Sounder (LADS) have conducted a range of Hydroscheme taskings in the Great Barrier Reef, Vansittart Bay, Holothuria Banks and the Eclipse Archipelago, as well as Torres Strait. LADS also conducted surveys of Broome (Rowley Shoals and Seringapatam Reef), Ashmore Island, and a number of shoals in the Timor Sea. The selection of the survey areas in the Great Barrier Reef and Holothuria Banks were in consultation with AMSA. The Deployable Geospatial Support Team (DGST) was deployed to New Caledonia in September 2014 and PNG in October 2014. DGST has just returned from a deployment to Casey Station in Antarctic to conduct a survey of Newcomb Bay over the summer season.

The HS have completed extensive maintenance periods on their Variable Speed Drive and continue to survey in the Townsville area off the North Queensland Coast. The SML will continue Hydroscheme tasking as well as support to military exercises in 2015.

The AHS has placed considerable focus on improving the standards of surveyed waters within the Torres Strait to aid the Under Keel Clearance programme and this has been the SML primary focus for the past 12 months at the request of the Australian Maritime Safety Authority (AMSA). Hydrographic surveys will continue in support of the Under Keel Clearance programme for the next 12 months.

The format of Hydroscheme (3 year rolling programme) is being reviewed, with work underway on a new version of Hydroscheme, along with a strategic planning 'Hydrographic Outlook' document (10 plus years). The next edition Hydroscheme 2015-18 is in draft form. The current version Hydroscheme 2012-2015 remains in force. Hydroscheme is available to the public via www.hydro.gov.au.

3. NEW CHARTS, ENC's & UPDATES

3.1 National Charting Scheme

The AHS has switched its focus from Paper Charts to ENC with the updating of ENC now our highest priority. ENC updates drive Notices to Mariners activity and paper chart blocks and paper charts are now being derived, in most cases, from a more detailed ENC dataset and with an increased compilation scale.

Our ENC portfolio consists of 847 cells from Nav Purpose 1-5. Since the last meeting we have compiled and published in excess of 1200 updates and 500 New Editions of cells. In contrast, we have compiled and published 9 New Paper Charts and 64 New paper editions, most of which were focused on a single theme update – new routing measure, new pipelines etc... which were too big for a Notice to Mariners block correction.

Since the last meeting we have issued 1696 Notices to Mariners for paper chart updates.

In February 2014, we implemented CARIS HPD software for our ENC portfolio management, this has streamlined our production processes, improved our quality focus and has provided a single database for product level data. The implementation included an Aids to Navigation source layer within the database, which has now been reconciled against existing ENC products with all features on different scale products now synchronised. We hope to continue this reconciliation process with underwater features and maritime boundaries over the next year.

We also intend to streamline the ENC to Paper Chart derivation process with a Paper Chart Composer team established to implement new software, standards and processes to allow for a quality fit-for-purpose paper chart to be derived from an ENC in an efficient timeframe and as ‘automated’ as possible.

In addition to the improvements already mentioned, over the next 12 months cartographers will also be involved in investigating and implementing new systems and processes with regards to CARIS Bathymetry database – to streamline bathymetric data management and deconfliction; Survey and Chart Planning tools – to streamline receipt and management of survey and chart product requests and tracking their progress; Source data receipt – a single system to track and prioritise all incoming hydrographically relevant data and provide it to the production and maintenance teams.

Whilst all this positive activity goes on we have fallen behind in our plans to refresh our small scale INT portfolio of charts, they have been kept up to date for Notices to Mariners but are in need of full new editions to update boundaries, new bathymetry, magnetic variation and larger scale chart data. This activity is likely to be pushed back even further until these new systems are in place and we can gain some production efficiencies in the small scale chart update process.

3.2 AusENC Service

Australia’s national ENC service, known as ‘AusENC’ is currently running its third year. The AusENC service was designed to support vessels operating within Australian and Papua New Guinean waters through simple ordering and easy availability. This AusENC service includes the full portfolio of published ENC covering Australian and Papua New Guinean waters. It is sold in a range of large and small geographical area packs at affordable prices. A free fortnightly web-based update service is included in the subscription price. For more information visit the AHS website at: www.hydro.gov.au/prodserv/digital/ausENC/enc.htm.

The local AusENC service complements the international services available through the global network of distributors of the International Centre for ENC (IC-ENC).

3.3 Chart Demand

Commercial demand for Australian ENC through the AusENC service increased by 33% in FY13-14 and in excess of 10% through IC-ENC services.

In comparison, demand for paper charts over the same period dropped by 13%. However, only 17 new charts / new editions were published in FY13-14 as compared with 39 new editions in FY12-13. Release of 56 new charts / new editions from July to December 2014 has resulted in demand on par with FY12-13.

3.4 International (INT) Charting Scheme

The progress on the INT Charting Scheme for Region “L” is as follows:

Small Scale (1:3 500 000 & 1:10 000 000)

No new editions published since last meeting

Medium Scale (1:1 500 000)

No new editions published since last meeting

Large Scale

None planned at this stage.

3.5 Planned Withdrawal of the AusRNC Service

The commercial AusRNC service was withdrawn as planned on 30 June 2014 and replaced by the AusENC service. AusRNC customers were provided 12 months notice of the withdrawal and were encouraged to switch to the AusENC service. Selected RNC charts will remain available via the Admiralty Raster Chart Service (ARCS).

While take-up of the RNC service was good in the early days, use of the full AusRNC service, which includes the update service, was overtaken by demand for AusENC after just one year of operation.

3.6 Chart Printing

Since May 2011, the AHS has printed all its paper chart orders on demand from up-to-date print files on large format inkjet printers housed at the Australian Hydrographic Office. Urgent orders are printed and dispatched within three days of order receipt and standard orders within five days. Printing charts in-house by Print On Demand (POD) is cost effective, eliminates wastage and provides charts to distribution agents and Defence customers that are up-to-date for Notices to Mariners (NTM).

3.7 Temporary & Preliminary NTM Corrections

From January 2011, the AHS has included Temporary and Preliminary corrections in ENC updates, thus enabling ENCs to be fully updated by loading one common file.

3.8 Challenges Ahead

The main challenges for the AHS relate to workforce, budget and travel – all of which impact Australia's ability to engage with and support regional and international hydrographic initiatives. Many of the systems-based challenges are being addressed. Various pilot projects and investigations have concluded successfully, with resultant updates to production system technology. The introduction of CARIS HPD has streamlined production and maintenance of ENC, however, the underpinning management of information themes and layers is an ongoing development activity.

Support areas of the AHS – Data Management, Nautical Information and Tides and Geodetic Control are also undergoing investigations and trials for new solutions. These changes will trigger organisational restructure in the near future, which coincides with the RAN's direction to reduce significantly staff numbers.

4. PUBLICATIONS

4.1 Australian National Tide Tables (ANTT)

ANTT has continued to be published in October each year for the following year. For details see: www.hydro.gov.au/prodserv/publications/antt.htm

4.2 AusTides (formerly known as Seafarer Tides)

AusTides has continued to be published in October each year for the following year. For details see: www.hydro.gov.au/prodserv/publications/ausTides/tides.htm

4.3 Seafarers Handbook for Australian Waters AHP 20

The third edition of the Seafarers Handbook for Australian Waters (formerly known as the Australian Seafarers Handbook) was published in December 2012. The fourth edition is due to be published in January 2016. For details of the publication see: www.hydro.gov.au/prodserv/publications/ash.htm

4.4 Maritime Gazetteer of Australia

The AHS maintains the Maritime Gazetteer of Australia as a web product. The gazetteer is a listing of all names shown on Australian navigational chart products. The resulting search provides the latitude and longitude of the place, its feature code and the Australian navigational charts on which the place is depicted. For details see: www.hydro.gov.au/prodserv/publications/mga/mga.htm

4.5 Australian Chart and Publication Maintenance Handbook AHP 24

The second edition of the Australian Chart and Publication Maintenance Handbook AHP 24 is available as an electronic publication and is available for download at www.hydro.gov.au/prodserv/publications/cpmh.htm

4.6 Australia Pilot

The current editions of the relevant Admiralty Sailing Directions are: Australia Pilot NP13 (4th Edition 2014), NP 14 (12th Edition 2013) and NP15 (12th Edition 2012).

5. 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 2013 to June 2014 was submitted to the IHO World-Wide Navigational Warning Service (WWNWS) Sub-Committee Meeting (WWNWS6) held at Wellington, New Zealand on 18-22 August 2014. A copy of the Self-Assessment report is attached as **Annex A**, for consideration under the meeting's agenda item 9 (Maritime Safety and the World Wide navigational Warnings Service.).

The next meeting (WWNWS7) will be held in Monaco in August 2015.

Under the capacity building programme, AMSA provided an instructor for the MSI Training Course held in Wellington 25-27 August 2014 and another course held at Muscat 15-17 December 2014.

6. C-55 UPDATE

Data is currently being compiled for updating of C-55.

7. CAPACITY BUILDING

7.1 SWPHC Capacity Building (CB) Activity

The 'Solomon Islands National Hydrographic Capability Development' formed part of the IHO 2014 Capacity Building Work Program (CBWP) for the SW Pacific region. The project involved the attachment of Mr John Dalomae (Senior Nautical Cartographer, Solomon Islands Marine Safety Authority) to the AHO for 2 weeks from 11-22 August 2014. During this period Mr Dalomae underwent training and work experience in nautical cartography and hydrographic information.

7.2 AusAID Funded Project

The following activities were carried out in 2014 as part of the AusAID funded project 'Capacity Building in Hydrography for Ocean and Coastal Development (SPC member countries)':

- Apr 2014 – Procurement of Sidescan Sonar System for SPC
- Nov 2014 - 3-weeks attachment of Mr Saleshe Kumar (SPC Hydrographic Surveyor) to the Australian Hydrographic Office. Aimed at providing an improved understanding of the workflow from data collection to chart production, with emphasis on validation and appraisal aspects.

The project's remaining activities to be carried out in 2015 are:

- Attendance of SPC staff members (2) at SWPHC13 Meeting
- AHS and SPC to conduct a hydrographic survey (approx 3 weeks duration) of a priority area in Solomon Islands

- AHS and SPC to conduct a hydrographic survey (approx 3 weeks duration) of a priority area in Kiribati

7.3 RAN Hydrographic School

The RAN Hydrographic School continues to provide training courses in hydrographic surveying for officers and sailors from Australia and the local region under the Defence Cooperation Programme.

The H2 course is recognised at the Category B level by the FIG/IHO International Board on Standards of Competence for Hydrographic Surveyors with Option 1 (Hydrography for Nautical Charting) and Option 6 (Military Hydrography). The H2 course conducted in 2014 included 2 New Zealand students. The H2 course in 2015 is offering a record number of positions to foreign students with up to 6 positions being made available.

In 2014 two Basic Courses and one Intermediate Course were conducted for RAN sailors. A total of 24 students attended the Basic Courses (14 weeks duration) and 8 students attended the Intermediate Course (8 weeks duration).

7.4 Tides Workshop

The National Tidal Unit (Bureau of Meteorology), in association with the Permanent Committee for Tides and Mean Sea Level, held a Tides Workshop on 21-24 October 2013. This 4-day programme provided theoretical and practical training in aspects of tides and sea level to 9 Australian persons involved in hydrographic surveying and tidal data collection and incorporated a field trip to the Adelaide Outer Harbor Tide Gauge site. The next Tides workshop is planned for mid-2015.

8. OCEANOGRAPHIC SERVICES

8.1 Tide Gauge Networks

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

8.1.1.1 The Australian Baseline Sea Level Monitoring Array currently consists of 16 permanent Gauges around the Australian Coastline, including one at Cocos Island. Locations of the gauges are shown in **Figure 1** (below). In December 2010 the station at Port Stanvac, South Australia was decommissioned because the site owners, Mobil Refining Australia, decided to shutdown the oil refinery and rehabilitate the site. Re-commissioning of the station sometime in the future depends on the long-term availability of the pier. The installation of an additional Baseline gauge at Thursday Island in Torres Strait is well advanced, with ancillary meteorological and backup sea level sensors already supplying data and fitting of the primary-standard sea level sensor to ensue shortly. Monthly reports are published by the Bureau and can be located on their website at: www.bom.gov.au/oceanography/projects/abslmp/reports.shtml

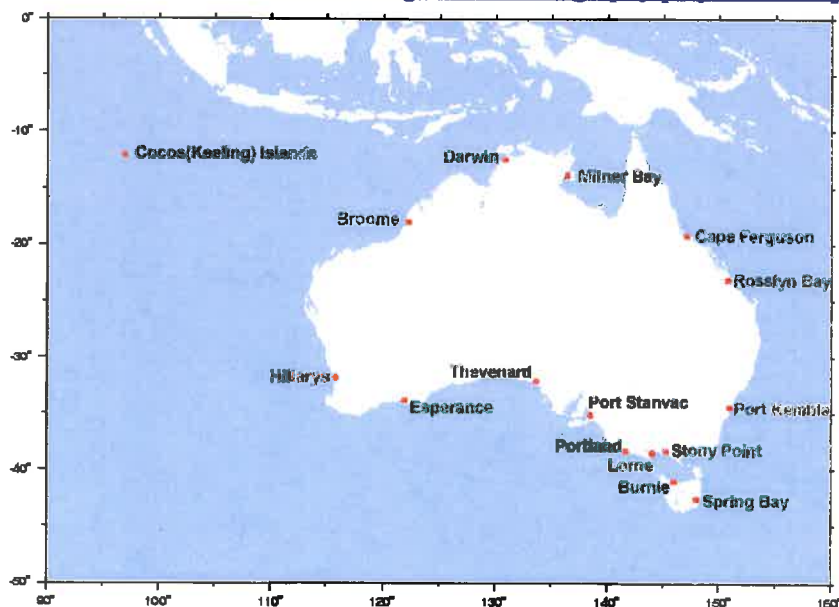


Figure 1: Australian Baseline Sea Level Monitoring Project sites

8.1.1.2 The Pacific Sea Level Monitoring Project, which currently consists of 12 permanent gauges throughout the South Pacific region monitoring sea level and related parameters. Locations of the gauges are shown in **Figure 2** (below). Originally installed in the early 1990s, they have since been upgraded with modernised data loggers, real-time satellite communications and additional radar-type water level sensor through 2011-2013 under an Observation Network Upgrade Project (ONUP). Installation of an additional gauge at Niue is planned for April 2015.

Monthly reports are published by the Bureau and can be located on their website at: www.bom.gov.au/oceanography/projects/spslcmp/spslcmp_reports.shtml

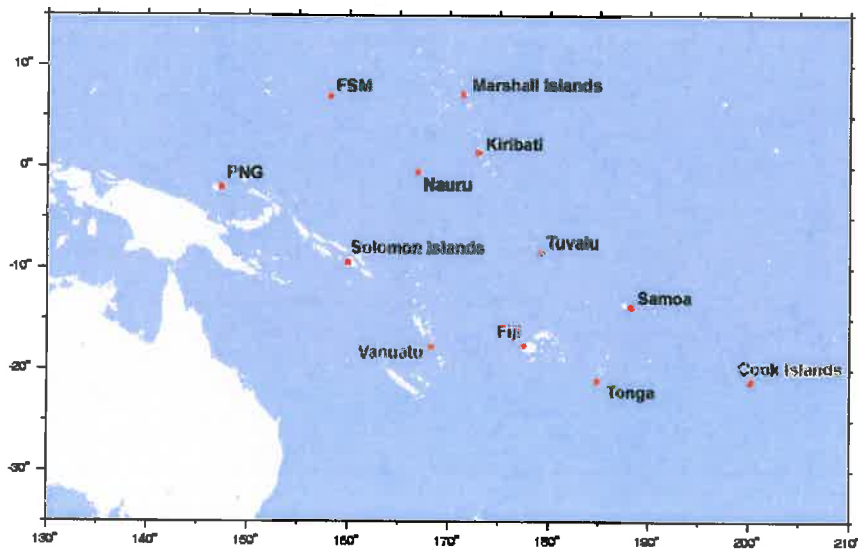
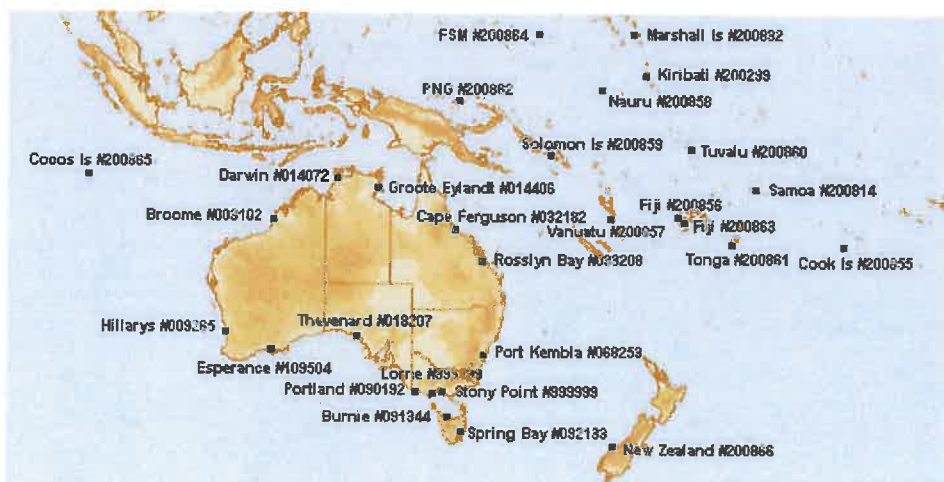


Figure 2: South Pacific Sea Level and Climate Monitoring Project Sites

8.1.2 The Australian Tsunami Warning System (ATWS) is supported by the 29 permanent Australian and Pacific tide gauges as well as an additional network of 17 radar-type tide gauges at four Pacific and 13 Australian sites (46 tide gauges in all) and six deep-ocean tsunameters (DART buoys) as shown in **Figure 3**. 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>



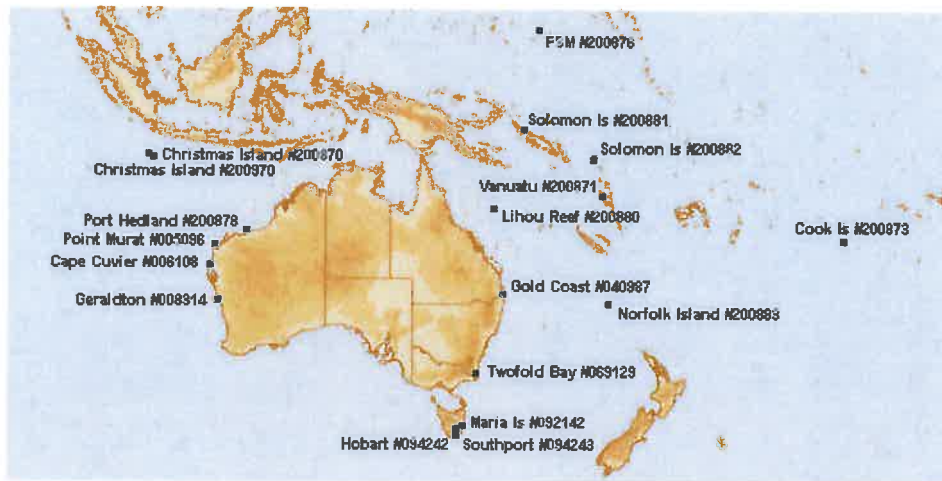


Fig. 3: Australian Baseline and South Pacific SEAFRAME stations (top) and additional ATWS radar gauges (bottom) used for monitoring of tsunamis in the Australian region.

8.1.3 An array of five Permanent Data Transmitting Tide Gauges and one Transmitting Tidal Stream Gauge is operated by the Australian Maritime Safety Authority, located in Torres Strait. The Tide Gauges are located at Booby Island, Goods Island, Turtle Head, Nardana Patches and Ince Point. The Tidal Stream Gauge is located at Nardana Patches. Further information is available on page 271 of the Australian National Tide Tables, 2015 edition.

8.1.4 Several State departments and individual Port Authorities also operate approximately 100 permanent gauges throughout Australia. Details are contained in the Australian National Tide Tables (ANTT).

8.1.5 The Australian Hydrographic Service (AHS) operates tide gauges in support of survey operations, but has no permanent gauge locations.

8.1.6 The AHS Tides Information System (TIS) has been partially completed, with the section supporting the production of the ANTT completed. The ANTT 2015 was produced with the TIS. TIS is being integrated with our whole of office data and production environment/system.

9. CONCLUSION

9.1 The AHS has completed all necessary ENC coverage to support commercial maritime activity. As part of this transition, the paper chart series has been brought to consistent modern standards, Temporary and Preliminary Notices included in the ENC update services, a start made on populating ENC with richer data levels than the paper chart equivalents, and a process of system modernisation initiated.

9.2 Notwithstanding current and future challenges, Australia is strongly committed to supporting capacity building in the SWPHC Region.