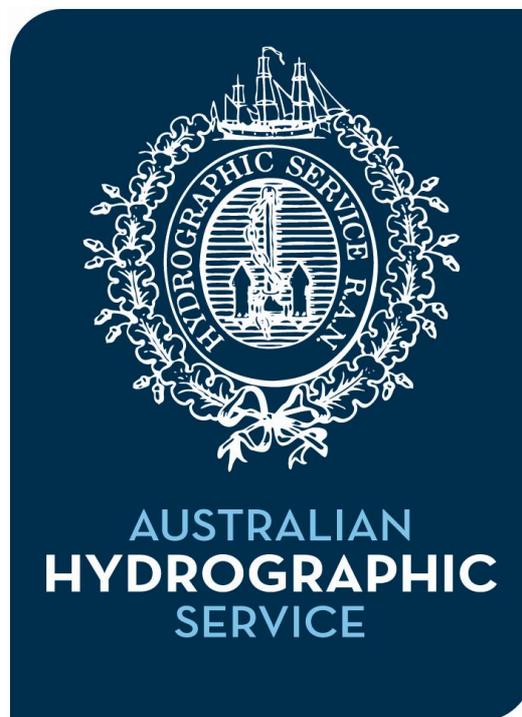


INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)

NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION (NIOHC)

14TH Meeting – Bangkok, Thailand, 26th - 28th February 2014



**AUSTRALIAN HYDROGRAPHIC SERVICE
NATIONAL REPORT**

14th NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION (NIOHC) MEETING

Bangkok, Thailand, 26th - 28th February 2014

AUSTRALIAN REPORT

1. GENERAL

The key focus of the Australian Hydrographic Service (AHS) has been to achieve full ENC coverage of Australia's waters. This was completed in December 2013.

The AHS ISO 9001:2008 Quality Management System was re-certified in 2011 but certification was not sought again in 2013 due to resource pressures. However, the AHS will continue to operate to the standard, focusing on those activities and aspects considered most important to navigation safety. A program of competency mapping of specialist skillsets is currently in progress and arrangements have been made for regular Nautical Cartography training.

2. SURVEYS

2.1 Coverage of New Surveys

The AHS has maintained its survey effort in the northern sector of our charting responsibility. The Hydrographic Ships (HS), Survey Motor Launches (SML) and the Laser Airborne Depth Sounder (LADS) have conducted surveys in the Great Barrier Reef, Gladstone approaches, Torres Strait, Arnhem Land, and approaches to Darwin. Recently two SMLs and the LADS unit were deployed to Papua New Guinea (PNG) to conduct surveys in the vicinity of Jomard Entrance, Dawson Strait (D'Entrecaseaux Islands), Kofulu Harbour (Cape Nelson) and the lagoons and approaches to the Panabwal (Conflict) Group and Deboyne Islands in the Louisiade Archipelago. The selection of the survey areas in PNG were in consultation with the PNG National Maritime Safety Authority and PNG Tourism. The Deployable Geospatial Support Team (DGST) recently returned from a successful Antarctica deployment, having carried out the first MBES survey by the upgraded RAN survey vessel WYATT EARP in the area around Casey Station.

The AHS continues to support national fisheries and border protection with additional surveys of Sahul Banks, Christmas Islands and Cocos (Keeling) Islands.

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.

Hydroscheme, the AHS three year rolling program of surveying and charting activities, provides guidance on ongoing and new surveys to be conducted. The current version of Hydroscheme 2012-2015 was issued in March 2012 and is available to the public via www.hydro.gov.au. The format of Hydroscheme is being reviewed and is likely to be split into two documents; Hydroscheme and a Naval Survey Planning document.

3. NEW CHARTS, ENCs & UPDATES

3.1 National Charting Scheme

Eighteen New Charts and New Editions of the national paper and raster chart series were produced from March 2013 to February 2014. Paper chart production has been primarily focussed on enabling ENC production, by bringing all charts to a common standard of metric, WGS84 and referenced to LAT. Other paper charting activity has been as a result of port development, border protection and surveillance activities.

The last fathoms chart was withdrawn in March 2012 so the entire paper chart series is metric. There is only one chart still referenced to a non-WGS84 datum (AGD66), it is expected to be withdrawn in mid 2014 making the entire portfolio referenced to WGS84. There are 12 charts still referenced to ISLW and work continues to replace these charts with LAT versions.

In addition to the paper charts, as of February 2014 there are 848 Electronic Navigational Chart (ENC) Cells produced and released in S63 encrypted format. These ENC cells are maintained in line with the paper charts they cover. The maintenance of these cells is now taking significant effort with 120 New Editions and 1050 updates published since the last NIOHC meeting (Mar 2013 – Feb 2014).

3.2 AusENC Service

In Jun 2012 the AHS officially launched its national ENC service known as AusEN. The AusENC service was designed to support vessels operating within Australia 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

Demand for Australian ENC has now exceeded 250,000 individual ENC across all three distribution services. The services are:

- AusENC (local, domestic commercial vessels),
- AusNZENC (RAN, RNZN),
- IC-ENC network (international shipping, most purchases being via the UK's Admiralty Vector Chart Service).

In comparison, demand for paper charts over the same period was 269,000. As there are twice as many ENC required to achieve the same coverage as paper charts, parity will be achieved when demand for ENC reaches approximately 500,000.

A review into future demand for paper charts has identified that by 2018-20, demand is likely to be as low as 25% of pre-ENC demand once it becomes stable. This level has been based on an assumption that 10% of vessels conducting international voyages will chose to retain paper charts as their back-up to ECDIS and ENC, that demand from recreational mariners is already stable, and that demand from nationally regulated commercial vessels will fall by between 50 and 80% as suitable ECS gain popularity. No significant changes to paper chart schemes or content are planned until the validity of this projection is confirmed – but notably, demand for paper charts dropped by 18% in 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 in 2012/2013

Medium Scale (1:1 500 000)

Limited New editions of INT 722 and 723 were published in 2012 to update for new Shipping Fairways only.

Large Scale

None planned at this stage.

3.5 Planned Withdrawal of the AusRNC Service

AusRNC was released as an interim form of electronic chart while hydrographic offices around the world acquired the necessary skills and capability to produce ENC's and then create full ENC coverage. Following completion of initial ENC coverage of the Australian Charting Area and the establishment of services to distribute and update these charts via the AusENC service and IC-ENC services, the AHS intends to withdraw its AusRNC service by July 2014. Selected RNC charts will remain available via the UK Admiralty Raster Chart Service (ARCS).

While take-up of the RNC service was good in the early days, after 17 years of service use of the full AusRNC service, which includes the update service has already been overtaken by demand for AusENC after just one year of operation.

3.6 Chart Printing

Since 16 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 ENC's to be fully updated by loading one common file.

3.8 Challenges Ahead

During 2012-13 investigations and pilot projects have been undertaken to update current production system technology. First has been a new process of managing individual Notices then creating the fortnightly Notices to Mariners edition and its derivatives. Next was a shift to CARIS HPD, with the Cartographic area commencing transition to HPD in mid-February 2014 for the production and maintenance of ENC. ENC have started to be populated with denser data and additional features and the paper chart series will become a thinned derivative of the ENC data. ENC scheming is starting to take precedence over Paper Charts. It is expected the paper chart series will only have minimal future scheming changes, mostly in areas of port development.

Support areas of the AHS – Data management, Nautical Information and Tides and Geodetic Control are also undergoing investigations and trials for new software solutions. It is expected that these changes may instigate organisational restructure in the near future. This coincides with Defence's mandate to reduce overall staff numbers significantly by 2016.

The urgency in completing ENC coverage has resulted in a backlog of outstanding updates for paper charts. On completion of full ENC coverage the AHS will refocus on incorporating all outstanding survey data in the published products.

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. 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 first edition of the Australian Chart and Publication Maintenance Handbook AHP 24 was published in 2011. For details of the publication see: www.hydro.gov.au/prodserv/publications/cpmh.htm

4.6 Australia Pilot

The current editions of the relevant UKHO Admiralty Sailing Directions are: Australia Pilot NP13 (3rd Edition 2011), 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 2012 to June 2013 was submitted to the IHO World-Wide Navigational Warning Service (WWNWS) Sub-Committee Meeting (WWNWS5) held in Monaco on 1-4 October 2013. A copy of the report can be downloaded from the IHO website (http://www.iho.int/mtg_docs/com_wg/CPRNW/WWNWS5/WWNWS5-3-2-X.pdf)

The next meeting (WWNWS6) will be held at Wellington, New Zealand in August 2014 and will be followed by a MSI Training Course for National coordinators within NAVAREA X and XIV under capacity building programme.

6. C-55 UPDATE

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

7. CAPACITY BUILDING

7.1 SWPHC Capacity Building (CB) Activities

As part of the (IHO) 2012 Capacity Building Program (CBWP) for the SW Pacific region, the senior managers of the national hydrographic offices of Papua New Guinea (PNG) and Solomon Islands underwent a 'Hydrographic Administration Training' attachment at the Australian Hydrographic Office (AHO) from 8th to 10th February 2012. Mr Nicholas Pion (Manager Hydrography, National Maritime Safety Authority (NMSA), PNG) and Mr Clifford Olisukulu (Chief Hydrographic Officer, Solomon Islands Hydrographic Unit) were provided with on-the-job exposure to senior managers working in the AHO and training in hydrographic administration and liaison with internal and external stakeholders.

Another 2012 CBWP activity carried out at the AHO was the 'PNG National Hydrographic Capability Development'. It involved the attachment of 2 cartographic staff of NMSA, PNG to the AHO for 2 weeks of Nautical Cartography follow-up training and work experience. Ms Patricia Logha and Ms Rhonda Amos were attached from 19-30 November and 3-14 December 2012 respectively.

7.2 AusAID Funded Project

The Australian Hydrographic Service (AHS) was successful in obtaining AusAID funding for the project 'Capacity Building in Hydrography for Ocean and Coastal Development (SPC member countries)' which was submitted jointly by the AHS and the Secretariat of Pacific Community (SPC) in 2012. The project runs over 3 years (July 2012 - June 2015). The initial activity involved the training of a SPC staff member (Mr Salesh Kumar) who attended the Category 'B' Course in Hydrographic Survey at the RAN Hydrographic School, Sydney during April-September 2013. In November two SPC staff members attended the SWPHC Meeting held in Port Vila, Vanuatu – funded under this Project. Other planned activities are:

- Mar 2015 – Procurement of Sidescan Sonar System for SPC
- Nov 2014 - 3-weeks attachment of Mr Salesh Kumar to the Australian Hydrographic Office
- February 2015 – AHS and SPC conduct a hydrographic survey (approx 3 weeks duration) of a priority area in Kiribati
- Mar-Apr 2015 – AHS and SPC conduct a hydrographic survey (approx 3 weeks duration) of a priority area in Solomon Islands
- May 2015 - Attendance of SPC staff members (2) at SWPHC Meeting in Cook Islands

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 Category B level by the FIG/IHO International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers with Option 1 (Hydrography for Nautical Charting) and Option 6 (Military Hydrography). The H2 course in 2013 included 1 civilian student from SPC and 1 student from New Zealand.

In 2013 two Basic Courses and one Intermediate Course were conducted for RAN sailors. A total of 18 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 Centre (Bureau of Meteorology), in association with the Permanent Committee for Tides and Mean Sea Level, holds an annual Tides Workshop at the NTC in Adelaide. This 4-day programme provides theoretical and practical training in aspects of tides and sea level to persons involved in hydrographic surveying and tidal data collection, and incorporates a field trip to the Adelaide Outer Harbor Tide Gauge site. The workshop held on 21st-24th October 2013 had 9 participants and a further workshop is planned to be held in September-October 2014.

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. They are:

8.1.1.1 The Australian Baseline Sea Level Monitoring Project currently consists of 16 permanent Gauges around the Australian Coastline, including 1 at Cocos Island. Locations of the Gauges are shown in **Figure 1**. 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. There are plans to install an additional Baseline gauge at Thursday Island in Torres Strait. Monthly reports are published by the Bureau of Meteorology website at: www.bom.gov.au/oceanography/projects/abslmp/reports.shtml

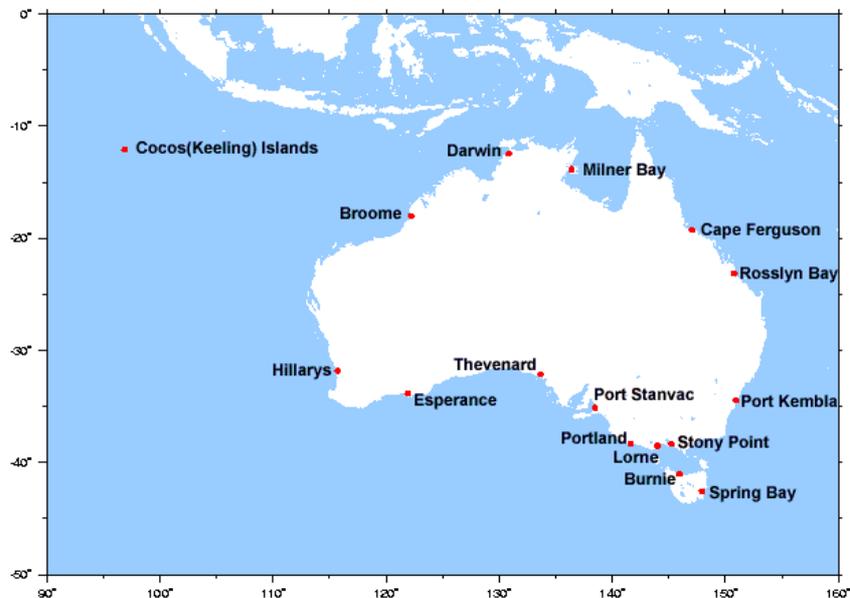


Figure 1: Australian Baseline Sea Level Monitoring Project sites

8.1.1.2 The South Pacific Sea Level Monitoring Project 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**. In 2011 work began on an Observation Network Upgrade Project (ONUP) to upgrade the Pacific stations with modernised data loggers, real-time satellite communications and additional radar-type water level sensors. All the 12 stations were upgraded by the end of October 2013. Monthly reports are published by the Bureau of Meteorology and can be located on their website at: www.bom.gov.au/oceanography/projects/spslcmp/spslcmp_reports.shtml

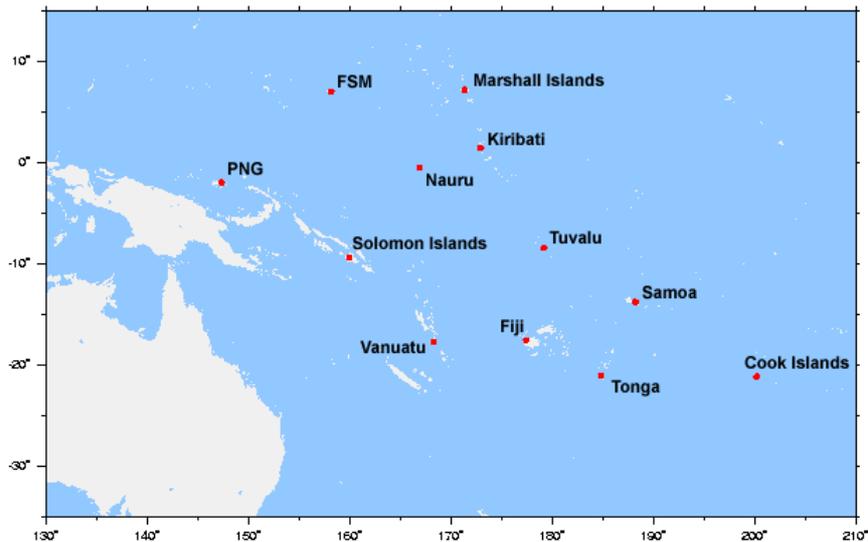


Figure 2: South Pacific Sea Level and Climate Monitoring Project Sites

8.1.2 The Australian Tsunami Warning System (ATWS) is supported by the permanent Australian and Pacific tide gauges as well as an additional network of 18 radar-type tide gauges at 6 Pacific and 12 Australian sites as shown in **Figure 3**. The primary purpose of these additional stations is for the detection of tsunamis and real time data is 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>



Figure 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 the Torres Strait between Australia and New Guinea. 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 266 of the Australian National Tide Tables, 2014 edition.

8.1.4 Several State departments and individual Port Authorities also operate approximately 100 permanent gauges throughout Australia, and 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. The ANTT 2014 was produced with the TIS in parallel with the old method. Completion of the TIS is planned and is dependent on funding and contractual requirements.

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 systems modernisation initiated. In parallel, the AHS is shifting to a new production environment using CARIS HPD as the first phase of a longer term system refresh, all in the interest of ultimately improving the quality of services to mariners.

9.2 Australia is strongly committed to supporting capacity building in the region.