IHO

SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION (SWPHC)

9th Meeting – Port Moresby, Papua New Guinea, 10-11 March 2009

Australian Hydrographic Service
National Report

9th SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION (SWPHC) MEETING
Port Moresby, Papua New Guinea – 10-11 March 2009

AUSTRALIAN REPORT

1. GENERAL

In August 2005 the Australian Hydrographic Service (AHS) achieved certification to ISO 9001 : 2000 (Quality Management System requirement) via SAI Global for the production and distribution of its nautical products. The Quality Management System was recertified in 2008 and was extended to incorporate the collection of data by ships and units of the AHS. In February 2009 the quality certification was upgraded to ISO 9001 : 2008.

2. SURVEYS

2.1 Coverage of New Surveys

Since the previous Commission meeting in September 2007, the Australian Hydrographic Service (AHS) has maintained its survey effort in the northern sector of our charting responsibility. Primarily, the Hydrographic Ships (HS) and Survey Motor Launches (SML) have conducted surveys in Torres Strait, Bonaparte Archipelago, Sahul Banks, NE Joseph Bonaparte Gulf, Bathurst Bay and Arnhem Land. The Deployable Geospatial Support Team (DGST) completed surveys in Port Macquarie and Napier Broome Bay. A reserve DGST has been formed from RAN Reserve personnel, which supplements the AHS capability on an adhoc basis.

In January 2006 the Australian Government identified a requirement to immediately improve charting in Torres Strait to enable greater border and resources protection in the region. With additional funding from the Australian Government, the AHS established the Fisheries Protection Surveying and Charting Project with the intention to bring charting across the entire area up to international standards before 2010. In order to meet this challenge, the AHS out-sourced this survey work via open tender. The field work of Phase 2 of this project has been completed and will be rendered by August 2009. Hydrographic Ships (HS) and Survey Motor Launches (SMLs) will continue to work in the Torres Strait region in order to meet this obligation.

Hydroscheme, the Australian Hydrographic Service's three year rolling program of surveying and charting activities, provides guidance on ongoing and new surveys to be conducted. The current version of Hydroscheme 2008-20011 was issued in Nov 08 and is available to the public via www.hydro.gov.au. The next edition, Hydroscheme 2009-2012 is expected to be distributed in late 2009.

2.2 New Technologies and/or Equipment

A planned upgrade to the SMLs is underway with MERMAID and PALUMA already undergoing refit. This upgrade to the hydrographic survey suite will incorporate multibeam echosounder technology. The SML Upgrade will enhance the survey rate of effort as well as overall platform capability. The first ship is currently scheduled to return to survey operations by August 2009. SMLs BENALLA and SHEPPARTON will begin their upgrade at that time. Similarly, the Laser Airborne Depth Sounder (LADS) sensor replacement has recently been upgraded to 900 hz (2 x 2m spot capability) and the aircraft returned to surveying duties in February.

2.3 New Ships

No new ships are currently planned.

2.4 Problems Encountered

No significant problems were encountered with the survey equipment.

3 NEW CHARTS & UPDATES

3.1 Charts & ENCs

3.1.1 National Charting Scheme

Hydroscheme is the three year rolling Surveying and Nautical Chart Production Plan. The latest version, 2007-2010 has been released and is available from the AHO website www.hydro.gov.au. It provides details on our upcoming programme.

Ninety five New Charts and New Editions of the national paper and raster chart series were produced from July 2007 to January 2009. Many of these new charts were part of the project to modernise the Papua New Guinea series charts and provide ENC coverage.

In addition to the paper charts, we now have 434 (Jan 09) Electronic Navigational Chart (ENC) Cells have been produced and released in S63 encrypted format. These ENC cells are maintained in line with the paper charts they cover. All Australian ENCs are being distributed via the IC-ENC network, with limited direct distribution to government, maritime agencies and pilots.

3.1.2 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)
INT 603, 604, 708 & 714 were released as New editions after general updating.
INT charts will be updated for changes to Magnetic Variation in 2010

Medium Scale (1:1 500 000)
INT 620, 621, 622, 720, 721, 722 were released as New editions after general updating
INT 643, 644, 728 are planned for release in 2010
INT 635, 723, 725 are planned for release in 2011

Large Scale
None planned at this stage.

3.1.3 Challenges Ahead

The implementation of the Digital Hydrographic Database (DHDB) is revolutionising the way we store and manage data with the creation of a seamless sounding database. The emphasis on loading the database is taking its toll on the output of new and revised charting products. This should be a medium term impact as once the database is populated chart and ENC production should be much more streamlined.

The Accelerated ENC Project is well underway with datapacks for 15 new charts being sent out each 6-9 months. 3 charts and their corresponding ENC are received for acceptance each month. The project is due for completion in June 2011.

Growing pressure to extend our ENC coverage has refocussed the organisation into ENC maximisation at the expense of updating paper charts. Additional funding is being applied to accelerate ENC production to achieve full coverage in 3 years.

The ENC production programme is a combination of New Chart compilations and chart conversions utilising both in-house and contracted services. The result will provide full Metric Charts on WGS84 / LAT datum in paper, raster and ENC for the Australian Charting Area.

4. NEW PUBLICATIONS & UPDATES

4.1 Australian National Tide Tables (ANTT)

For details see: http://www.hydro.gov.au/prodserv/antt.htm

4.2 Seafarer Tides

For details see: http://www.hydro.gov.au/seafarer/tides/tides.htm

4.3 Australian Seafarers Handbook

The AHS published the Australian Seafarers Handbook in December 2004. The handbook is available in the current edition corrected for notice to mariners. Edition 2 is presently in compilation and due for publication in June 2009.

For details of the publication see: http://www.hydro.gov.au/prodserv/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 lat and long of the place, its feature code and the Australian navigational charts on which the place is depicted.

For details see: http://www.hydro.gov.au/tools/mga/mga.htm

4.5 Australian Chart and Publication Maintenance Handbook

The AHS is currently compiling this NP to describe the process for the upkeep of Australian digital and paper navigational products. It is due for publication in 2010.

4.6 Australia Pilot

Under the United Kingdom Hydrographic Office (UKHO) / AHS Sailing Directions Cooperation Project, Admiralty Sailing Directions - Australia Pilot NP14 and NP13 were published in 2007 and 2009 respectively.

5. MSI

Australia is the NAVAREA X coordinator which extends from the Antarctic coast to the equator and from 080E to 170E (see Figure 1 below). There are four national coordinators within this NAVAREA – New Caledonia, Papua New Guinea, Solomon Islands and Vanuatu.

Detailed information in respect of MSI broadcasts can be found in the Admiralty List of Radio Signals (ALRS) Vol 5, 2008/09 edition and the Annual Australian Notices to Mariners, 2009 edition. The scheduled MSI broadcasts are at 0700 UTC and 1900 UTC and promulgated by both the IOR and POR satellites.

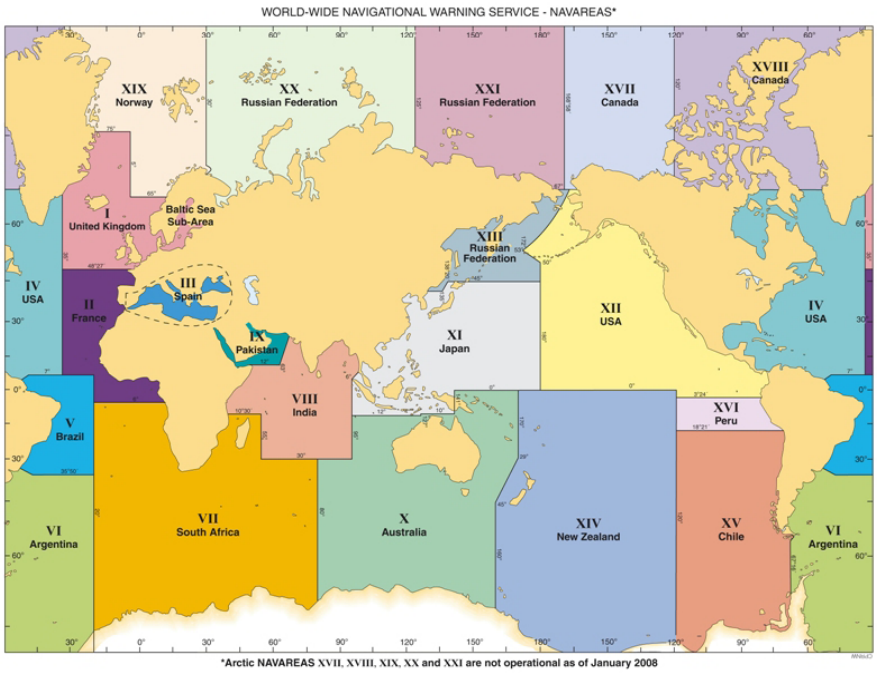

Figure 1: World-wide Navigational warning Service - NAVAREAS

5.1 Navtex Coverage

Australia does not broadcast coastal warnings via Navtex. The maritime areas around Australia have been designated GMDSS Sea Area A3. Coastal and local warnings are broadcast using SafetyNET to take advantage of the Navtex emulation capability of the Inmarsat-C MES. The pseudo Navtex areas are provided in Figure 2 below.

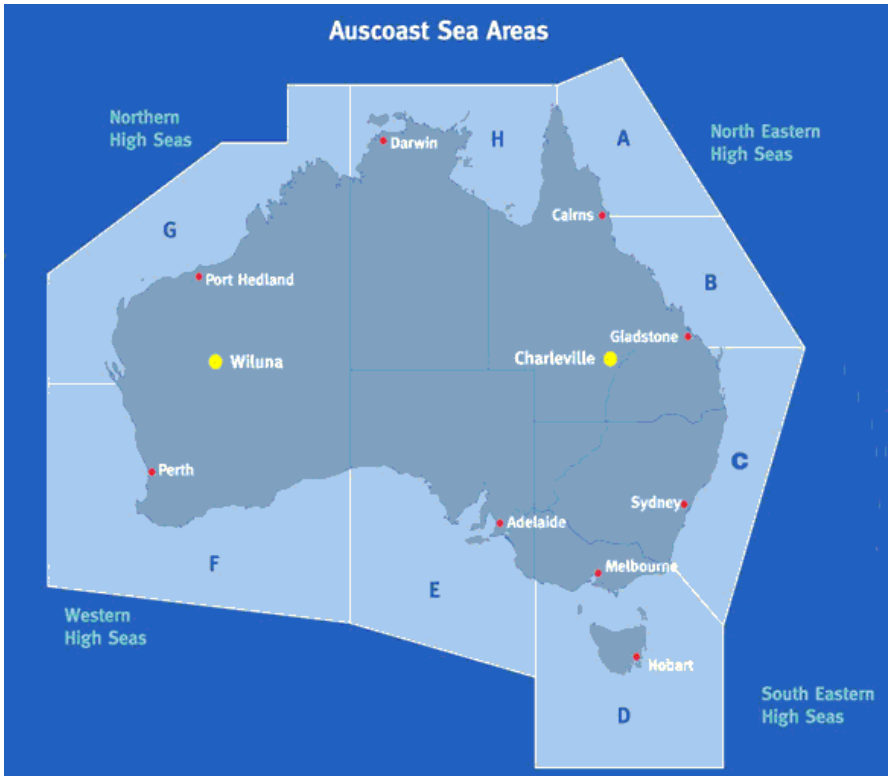

Figure 2: Australian Coastal areas – NAVTEX B1 code

5.2 NAVAREA Website

Navigational warnings in force are available at the following website which is updated in almost real time:
http://www.amsa.gov.au/search_and_rescue/distress_and_safety_communications/MSI/AUSMSI.htm

SafetyNET weather broadcast information can be obtained from:

http://www.bom.gov.au/marine/bureau_inmarsat.shtml

5.3 Shipping Traffic Around Australia

Figure 3 provides an indication of the density of shipping traffic around the Australian coast and within its search and rescue region which extends from 075 East to 163 East longitude. The figure indicates the high volume of traffic from the west coast via the Sunda and Lombok Straits and from the east coast via the east off Papua New Guinea to/from Japan, China, etc. Furthermore it does indicate that there is relatively high traffic throughout NAVAREA X except for the area south of Tasmania. The data has been taken from ships reporting to the Australian Ship Reporting system during 2007.

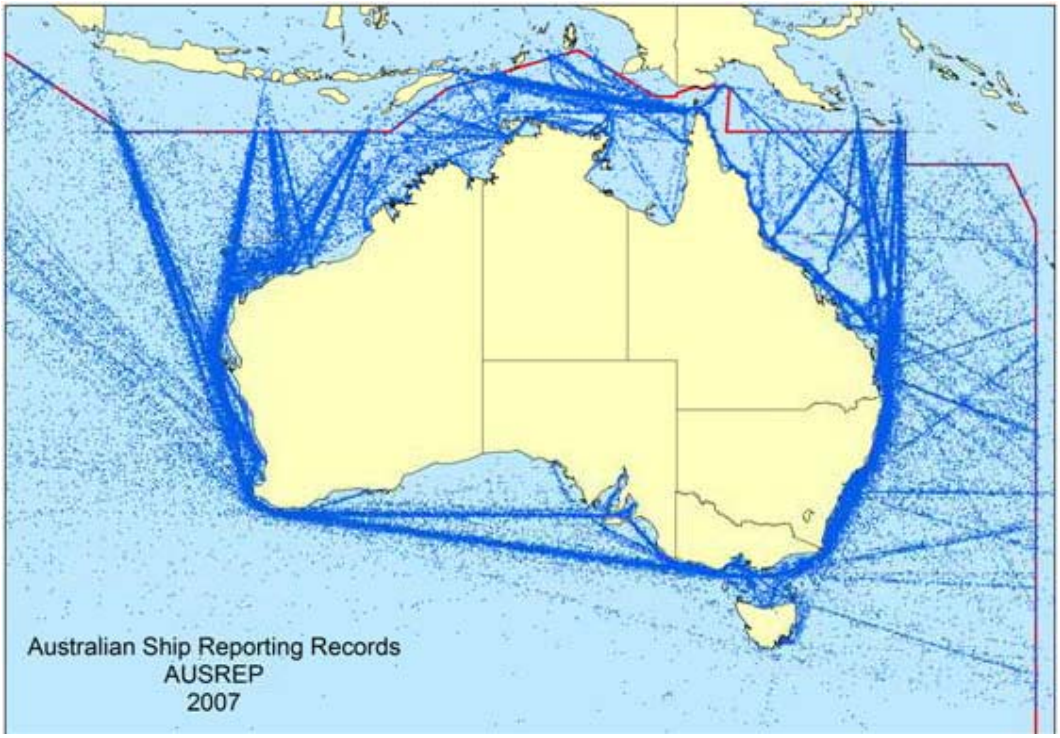

Figure 3: Shipping Traffic Around Australia - 2007

6. S-55 UPDATE

The latest information for Australia was forwarded to the IHB in October 2008.

7. CAPACITY BUILDING

7.1 RAN Hydrographic School

7.1.1 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 syllabus has been resubmitted to the IHB for reaccredited in February 2009, as a Category B course by the FIG/IHO International Advisory Board on Standards of Competence for Hydrographic Surveyors in 'Nautical Charting' and 'Military Hydrography'. The Hydrographic School is currently reviewing the assessment process for the H2 course with a potential benefit of reducing the course by four weeks.

7.1.2 During the period October 2007 to 2009 a total of 24 students have completed the two H2 courses. This has included 17 students from the Royal Australian Navy, 4 from New Zealand, 2 from the Philippines, and 1 from Papua New Guinea.

7.2 Training of PNG personnel

7.2.1 The AHS has been assisting in the revitalisation and subsequent support of the revised hydrographic arrangements in Papua New Guinea (PNG) under the PNG National Maritime Safety Authority (NMSA). Mr Joseph Kunda (Manager, Hydrographic Services) attended the H2 Course at the RAN Hydrographic School (May-Oct 2007). In February 2008 Ms Rhonda Amos (Charting Officer) and Mr Nicholas Pion (Cartographic Officer) undertook a 2 weeks training programme at the Australian Hydrographic Office to build upon their existing cartographic skills. The major focus of the training was the maintenance of charts and publications, with a secondary focus on distribution.

7.3 Training of South Pacific Region personnel

7.3.1 The National Tidal Centre (Bureau of Meteorology) participated in the Pacific Islands Marine Data and Observations Training Workshop held in Nadi, Fiji on the 22 to 25th September 2008. The workshop was well attended with 2 delegates each from 14 countries in the region with expertise provided by many international trainers.

7.3.2 The objectives of the workshop were to raise awareness of the coastal and open ocean data sets and data products being generated in the Pacific Islands region; to provide hands-on training in the use of existing online data access, visualisation and extraction systems; and to provide information on the use of certain data sets for policy development and implementation.

7.3.3 The workshop was a joint initiative of the South Pacific Sea Level and Climate Monitoring Project and the Pacific Islands Global Ocean Observing System. Funding was provided by the East West Center, the US National Oceanic and Atmospheric Administration, AusAID (through the Bureau of Meteorology), the South Pacific Applied Science Commission and the South Pacific Commission.

8. OCEANOGRAPHIC SERVICES

8.1 Tide Gauge Networks

8.1.1 Two permanent Tide gauge networks are operated in the region by the National Tidal Centre (NTC) of the Bureau of Meteorology . They are:

8.1.1.1 The Australian Baseline Sea Level Monitoring Project which currently consists of 16 permanent Gauges around the Australian Coastline, including 1 at Cocos Island. Locations of the Gauges are shown in Figure 4 (below).

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

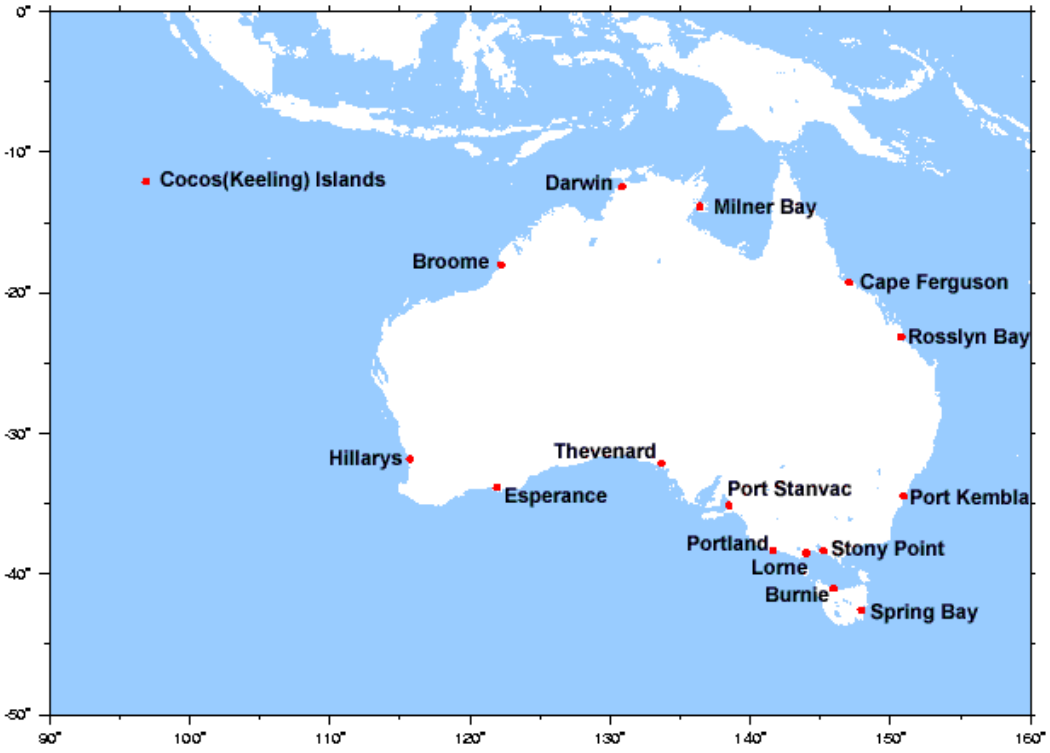

Figure 4: Australian Baseline Sea Level Monitoring Project sites

8.1.1.2 The South Pacific Sea Level and Climate 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 5 (below). Monthly reports are published by the NTC and can be located on their website at: www.bom.gov.au/oceanography/projects/spslcmp/spslcmp_reports.shtml

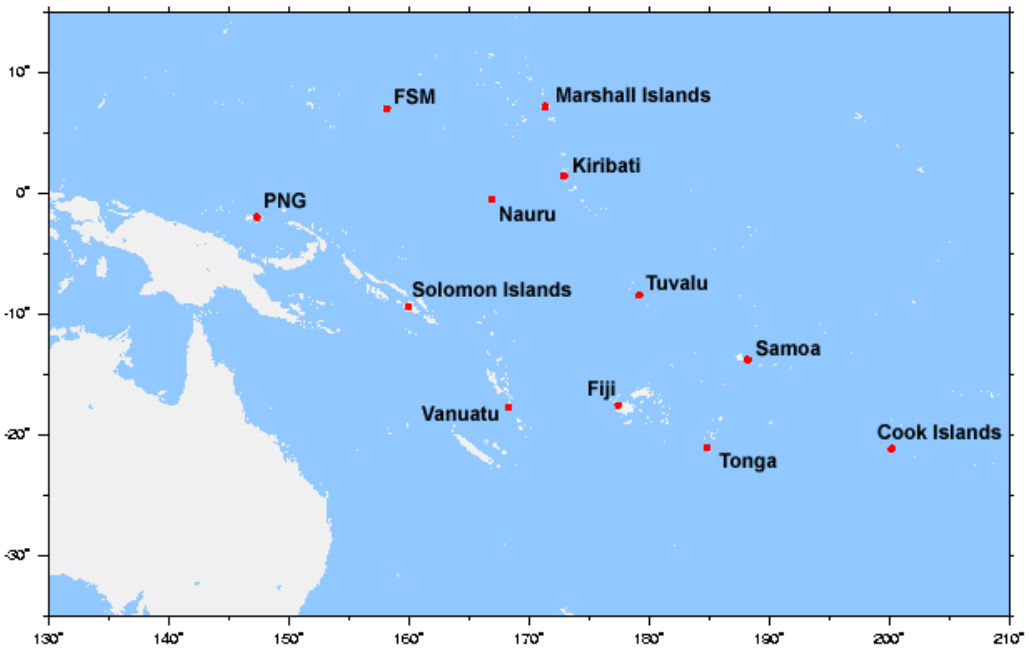

Figure 5: South Pacific Sea Level and Climate Monitoring Project Sites

8.1.2 Since 1994 the gauges in both arrays have been able to be accessed in real time for tsunami monitoring purposes. Since the December 2004 Sumatran event however, all but one of 35 sites have been equipped with more reliable communications links that transmit the data every minute via satellite and made available via the Global Telecommunication System (GTS) every three minutes. Further efforts will be made in the coming year to install about four more stations with an emphasis on tsunami monitoring and real time data transmissions to be made available globally. Local and regional capacity will be enhanced in the countries of the region to capture the data and develop emergency response strategies in the event of a tsunami.

All of the existing and many of the new stations will also capture weather information and contribute to the global models to provide enhanced information for forecasts in the region.

8.1.3 An array of 5 Permanent Data transmitting Tide Gauges and 1 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 258 of the Australian National Tide Tables, 2009 edition.

8.1.4 Several State departments and individual Port Authorities also operate approximately 50 permanent gauges throughout Australia, and details are contained in the Australian National Tide Tables.

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

8.2 New Equipment

The AHS continues to use Inter-Ocean S4 Tide gauges and is currently conducting trials with RBR tide recorders. Inter-Ocean S4 Current meters and RD Instruments Workhorses ADCPs continue to be used and no new current gauges obtained.

8.3 Problems Encountered

Problems have still been encountered with the RD Instruments Workhorse ADCPs, in respect to successfully recovery with the acoustic releases due to bio-fouling. Secondary recovery methods are currently being used to ensure successfully recovery until bio-fouling issue can be resolved.

9. CONCLUSION

9.1 The Australian Hydrographic Service has made significant advances over the past 18 months with substantial capability improvements to our hydrographic units and acceleration of new paper chart and ENC production to record levels with the support of contracted services. In the last 6 months budgets have been substantially reduced and we face a significant challenge to maintain the production targets whilst coping with the increasing chart maintenance overheads.

9.2 The other main challenges are the quality assurance and management of rapidly increasing quantities of hydrographic data as the new survey systems are introduced throughout the fleet, and providing training in specific nautical cartographic skills for new staff when no training courses in nautical cartography are available in the region.
