FOREWORD BY THE FIRST ASSISTANT SECRETARY

I am pleased to present the latest edition of the Australian Hydrographic Office (AHO) National Hydrography Scheme – HydroScheme. HydroScheme details hydrographic surveying and charting activities programmed for the next three-year period within the Australian Charting Area (ACA) and in areas where Australia has specific obligations to provide hydrographic services. As well as outlining prioritised survey areas, HydroScheme describes planned charting projects and updates to publications. Further, it details other planned improvements or changes to the hydrographic services provided by the AHO. Of particular note, the areas outside of the ACA for which Australia is Primary Charting Authority (PCA) include Papua New Guinea and Solomon Islands.

HydroScheme is aligned with Government priorities and national strategic objectives and has been developed in consultation with national and international authorities. HydroScheme is reviewed annually to reflect changes in national priorities and to incorporate changing requirements of Government agencies and the maritime community. Noting the importance to navigation safety and our ability to trade by sea, achievement of HydroScheme surveys and charting projects is monitored closely by the AHO and reported through Portfolio Budget Statements and the Defence Annual Report.

Assignment of Defence hydrographic units and resources to HydroScheme activities is balanced carefully against Government priorities. As national priorities or Defence operational requirements change, achievement of programmed HydroScheme activities may be affected.

The Defence White Paper 2016 signalled the Government’s intention to develop ‘an efficient combination of military and commercial hydrographic and oceanographic survey capabilities’ to replace the current hydrographic capabilities of the Royal Australian Navy. Defence Project SEA2400 has commenced discussions with the hydrographic surveying industry to establish the HydroScheme Industry Partnership Program (HIPP), which aims to ‘grow and deliver a sustainable, productive and efficient program to support the National Survey Task’.

I welcome any feedback on HydroScheme and encourage further input from the maritime community. My point of contact on all matters relating to HydroScheme and the provision of hydrographic services is the Hydrographer of Australia, who is based at the AHO in Wollongong.

Neil Orme
First Assistant Secretary
Hydrography, Meteorology and Oceanography
FOREWORD BY THE HYDROGRAPHER

The Australian Hydrographic Office (AHO) is the national authority on hydrographic matters and is responsible for delivering hydrographic services to meet the demands of the maritime community in line with national and international standards. The requirement for these services stems from arrangements made by the International Hydrographic Organization (IHO) and coordinated by regional hydrographic commissions and the International Convention for the Safety of Life at Sea. They are reflected in Australian domestic law under the *Navigation Act 2012*. Under agreements between governments, Australia is also the Primary Charting Authority for Papua New Guinea and Solomon Islands.

The AHO plays a crucial role in Australian and regional maritime communities and will continue to deliver high quality hydrographic services to mariners. HydroScheme underpins the delivery of these services to mariners navigating in Australian and regional waters.

Consultation with various maritime authorities and stakeholders is paramount to compiling a nationally focused HydroScheme. For countries where Australia is the Primary Charting Authority the respective national governments and maritime authorities play a crucial role by determining their national priorities.

As requirements change and technologies advance, particularly in regard to electronic and digital navigation services, the AHO will continue to adapt or develop products and services to meet these requirements. In some cases the AHO will withdraw products or services that no longer meet the needs of the maritime community to free resources for new tasks.

The Australian Government has commenced discussions with industry in order to establish a partnership to meet national survey task obligations driving fundamental change to the delivery of Defence hydrographic and oceanographic services and environmental data collection capabilities. As we embrace and prepare for the next generation of hydrographic services, the AHO will continue to evolve with improved capabilities through people, systems and facilities. The future of the AHO and the national hydrographic surveying industry is very bright.

HydroScheme is the national surveying and charting plan and it is important the maritime community actively engages the AHO to shape the future, whether that be for navigation safety, commercial efficiency and productivity, or protection of the marine environment. I commend to you HydroScheme 2017-2020 and invite feedback on its content and the nature of any planned surveys and improvements or changes to the products and services of the AHO.

Brett Brace

Commodore, RAN

Hydrographer of Australia
The Australian Charting Area (ACA) covers waters where Australia has specific obligations under the International Convention for the Safety Of Life At Sea (SOLAS) convention, United Nations Convention on the Law Of the Sea (UNCLOS) and the Navigation Act. The ACA also covers areas where Australia provides hydrographic services, including the publication of nautical information and International Series (INT) Charts as agreed by members of the International Hydrographic Organisation. The AHO has supporting arrangements in place to provide hydrographic services to other countries namely, Papua New Guinea and Solomon Islands.
DEVELOPMENT AND PRIORITISATION

HydroScheme provides the plan of surveying, charting activities and an outline of hydrographic services provided by the AHO. HydroScheme is reviewed annually to ensure all activities listed, and the priorities allocated, meet current and forecast requirements of the maritime community and align with national strategic objectives.

Australian requirements are determined primarily in consultation with the Australian Maritime Safety Authority (AMSA), which provides coordinated input regarding the requirements of the commercial shipping industry and Australian ports. In addition, the Australian Antarctic Division (AAD) provides advice on Australia’s international charting responsibility (under International Hydrographic Commission arrangements) for maritime areas off East Antarctica. Input is also provided by Headquarters Joint Operations Command (HQJOC) and the Australian Geospatial-Intelligence Organisation (AGO).

National priorities for Papua New Guinea (PNG) are determined in consultation with the PNG Maritime Safety Committee (MSC), while those of Solomon Islands are determined in consultation with the Solomon Islands Maritime Safety Administration (SIMSA).

The AHO retains national responsibility for surveying, charting and the provision of hydrographic services within Australian waters in accordance with the Navigation Act 2012. To ensure the continued safety of all mariners it is essential that close collaboration, open communication and data sharing is maintained between all stakeholders. Authorities in PNG and Solomon Islands retain national responsibility for Hydrographic services in respective waters, with support from Australia as Primary Charting Authority (PCA).

All requests for surveying and charting activities received by the AHO are reviewed and prioritised using a number of key criteria, including shipping traffic density, emerging port requirements, the bathymetric characteristics of the area, previous survey coverage, the quality of existing charted information and production efficiencies. The survey specific components of HydroScheme are maintained within a database with surveys being added, reprioritised or removed as priorities change or work is completed.

REPORTING AND ACCOUNTABILITY

HydroScheme targets for each financial year (July to June) are set on an annual basis and included in the Department of Defence Portfolio Budget Statements. These targets are reviewed mid year through the Portfolio Budget Additional Estimates and are revised if necessary. Achievement against these targets is reported through the Defence Annual Report.

Since the 2014-15 financial year onwards, performance against nautical charting production shifted to focus on charting projects. A charting project includes all priority elements involved in producing paper and electronic navigational charts for particular geographic areas. The number of Maritime Safety Updates released, as well as Nautical Publications (NP) produced each year, are also included in routine performance reporting.

Achievement of Survey Days in accordance with HydroScheme is reported as a Key Performance Indicator (KPI) that is monitored closely by the Hydrographer.
HYDROGRAPHIC SURVEY FORCE PROGRAM

The AHO undertakes a range of hydrographic surveys each year, the number of which depends on resource availability, unit capability and other operational requirements. Given the rolling nature of each three-year HydroScheme, only the highest priority surveys that can be undertaken each year are detailed within HydroScheme.

The table below shows the number of Survey Days Planned (SDP) (or sorties in the case of Laser Airborne Depth Sounder (LADS)) as a result of aligning national survey priorities with the availability and capability of Royal Australian Navy (RAN) Hydrographic Survey Force (HSF) units. Whilst HydroScheme does not detail specific dates for hydrographic survey areas, surveys have been prioritised for each financial year to allow flexibility in tasking HSF units to undertake HydroScheme surveys.

NUMBER OF SURVEY DAYS PLANNED

The table below shows the number of HSF SDP for financial year 2017-18.

<table>
<thead>
<tr>
<th></th>
<th>HS</th>
<th>SML</th>
<th>LADS</th>
<th>DGST</th>
<th>TOTAL</th>
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<tr>
<td></td>
<td>143</td>
<td>330</td>
<td>140</td>
<td>35</td>
<td>648</td>
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</table>

The number of SDP for financial year 2017-18 is lower than the previous FY due to maintenance, training and certification requirements. It is anticipated that this number will increase in 2018-19 and reduce during 2019-20 with the phasing out of LADS capability however this will be offset from late 2019 as the HydroScheme Industry Partnership Program (HIPP) commences. Hydrographic surveys provided under the HIPP are likely to commence in late 2019. Rate of effort will be developed as the HIPP matures.

HSF OPERATIONAL CONSTRAINTS

The HSF comprises two Hydrographic Ships (HS), four Survey Motor Launches (SML), one LADS Flight, one Deployable Geospatial Support Team (DGST), six Survey Motor Boats (SMB) and one Antarctic Survey Vessel (ASV). Details of HSF Units are available at www.navy.gov.au/fleet

Hydrographic Ship - The HS provides a long range offshore survey capability that can be deployed on a variety of taskings.

Survey Motor Launch - SML are ideally suited to coastal survey operations, allowing the vessels to take advantage of their shallow draught and superior manoeuvrability.

Survey Motor Boat - SMB are generally supported by a HS, although they do have the capacity to work independently for an extended period. SMB are mostly suited to operations in protected waters and provide the RAN with a high quality shallow water survey capability.

Deployable Geospatial Support Team - DGST operates the Antarctic Survey Vessel in order to directly support maritime operations in East Antarctica. The DGST deployment schedule is directly linked to the AAD shipping schedule. DGST is also available for survey tasks throughout the year when not undertaking other operational activities.

Laser Airborne Depth Sounder - LADS can rapidly survey shallow, dangerous or complex waters such as reefs and cays that would otherwise be too dangerous for surface vessels. LADS also permits the rapid identification of key areas of navigational significance. Depths obtained are dependent upon environmental conditions such as sea state, weather and water clarity.

Depth limitations of the primary bathymetric sensor of each HSF capability are as follows:

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<thead>
<tr>
<th></th>
<th>HS</th>
<th>SML</th>
<th>SMB</th>
<th>LADS</th>
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<tr>
<td></td>
<td>20-200m</td>
<td>10-200m</td>
<td>5-50m</td>
<td>0-70m</td>
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</tbody>
</table>
HYDROGRAPHIC SURVEY AREA DETAILS

The surveys to be conducted are detailed in the National Survey Program for each financial year. Each survey is numbered from Esperance, Western Australia, moving clockwise. A brief description of the purpose of each survey is followed by specific requirements, including the standard of data acquisition and charting required. Considerations for the conduct and planning of the survey are also detailed.

To provide a measure of effectiveness and accountability for the operation of the HSF, an estimate of the survey days required to complete each priority area has been calculated and is based on the capabilities and expected rate of effort of the preferred HSF unit. This estimate takes into account the size, depth and complexity of the area, and the survey specifications, supporting infrastructure and charting requirements. The estimate of survey days does not include passage time to and from the survey area or downtime due to equipment defects, unexpected poor weather and other operational constraints.

The chartlets accompanying each survey indicate the areas, by priority, to be completed within the estimated time frame.
National Survey Program July 2017 – June 2018

<table>
<thead>
<tr>
<th>Number</th>
<th>Survey Area</th>
<th>Region</th>
<th>Page</th>
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<tbody>
<tr>
<td>1</td>
<td>Esperance</td>
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<td>8</td>
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<td>18</td>
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<td>Papua New Guinea</td>
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<td>Great Barrier Reef</td>
<td>Queensland</td>
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<td>Swain Reefs</td>
<td>Queensland</td>
<td>23</td>
</tr>
<tr>
<td>15</td>
<td>Mawson Station</td>
<td>Antarctica</td>
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National Survey Program July 2018 – June 2019

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<td>Montague Sound</td>
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<td>Davis Station</td>
<td>Antarctica</td>
<td>26</td>
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<tr>
<td>Number</td>
<td>Survey Area</td>
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</table>
Hydroscheme Survey Tables

<table>
<thead>
<tr>
<th>Purpose</th>
<th>The intended outcome of the survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>A description of the survey task</td>
</tr>
<tr>
<td>Requesting Agency</td>
<td>Primary organisation requesting the survey task</td>
</tr>
<tr>
<td>Stakeholders</td>
<td>List of stakeholders that have an interest in the survey</td>
</tr>
<tr>
<td>Shipping</td>
<td>Types of vessels using the waterways, including draught where known</td>
</tr>
<tr>
<td>Considerations</td>
<td>Aspects that may affect the method of survey employed by the hydrographic unit, including nature of the seafloor and environmental conditions</td>
</tr>
<tr>
<td>Charted ZOC</td>
<td>The current Zone of Confidence (ZOC) allocated for the area</td>
</tr>
<tr>
<td>Minimum ZOC Required</td>
<td>The final charted ZOC required to meet the intended usage requirements. See the Seafarers Handbook for Australian Waters (AHP 20) for ZOC classification</td>
</tr>
<tr>
<td>Estimated Survey Days</td>
<td>Estimated number of survey days required for the priority survey area based on the operating capabilities of the preferred survey unit</td>
</tr>
<tr>
<td>Preferred Unit</td>
<td>Most appropriate HSF unit to conduct the survey, given capability and survey area</td>
</tr>
<tr>
<td>Optimum Survey Period</td>
<td>The time of year when seasonal weather conditions are most conducive to survey operations</td>
</tr>
<tr>
<td>Survey Specification</td>
<td>Order of survey in accordance with International Hydrographic Organization (IHO) Standards for Hydrographic Surveys (S44) Edition 5</td>
</tr>
<tr>
<td>Charts Affected</td>
<td>List of Electronic Navigational Charts (ENC)/ Nautical Charts affected by new survey data</td>
</tr>
<tr>
<td>FY Prioritisation</td>
<td>Financial Year (FY) in which the survey is planned to be undertaken</td>
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Survey Area Details and Chartlets

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<td>Cape Denison</td>
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</tr>
<tr>
<td>19</td>
<td>Macquarie Island</td>
<td>29</td>
</tr>
</tbody>
</table>
1. PURPOSE
To facilitate safe navigation of international and coastal shipping

2. TASK
Conduct a modern survey in the southern approaches to Esperance in the Archipelago of the Recherche. Identify and survey passages and establish access routes

3. REQUESTING AGENCY
AMSA

4. STAKEHOLDERS
Commercial shipping, AMSA

5. CONSIDERATIONS
General depth of water is greater than 20m. Dangers to navigation may exist in the unsurveyed section of the area. Sloping seafloor with a low tidal range and minimal tidal stream

6. CHARTED ZOC
ZOC B, C & D

7. MINIMUM ZOC REQUIRED
ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

8. ESTIMATED SURVEY DAYS
25

9. PREFERRED UNIT
LADS, HS with SMB

10. OPTIMUM SURVEY PERIOD
Feb-Apr

11. SURVEY SPECIFICATION
Order 1b

12. CHARTS AFFECTED
AU335121, AU335123, AU434122, AU434123 AU435122, Aus119, Aus762, Aus763

13. FY PRIORITISATION
2017-18, 2018-19
### PURPOSE
To facilitate safe navigation of international and coastal shipping

### TASK
Conduct a modern survey of the coast and identify navigational dangers. Conduct a modern survey of the proposed shipping route offshore

### REQUESTING AGENCY
AMSA

### STAKEHOLDERS
Commercial shipping, AMSA

### SHIPPING
International shipping with draughts less than 16m, coastal shipping with draughts less than 6m

### CONSIDERATIONS
General depth of water is greater than 20m. Dangers to navigation may exist in the unsurveyed section of the area. Outer route extends over the continental shelf to the south. Sloping seafloor with a low tidal range and minimal tidal stream

### CHARTED ZOC
ZOC B, C & D

### MINIMUM ZOC REQUIRED
ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

### ESTIMATED SURVEY DAYS
40

### PREFERRED UNIT
LADS

### OPTIMUM SURVEY PERIOD
Feb-Apr

### SURVEY SPECIFICATION
Order 1b

### CHARTS AFFECTED
Numerous

### FY PRIORITISATION
2017-18, 2018-19
### PURPOSE
To facilitate safe navigation of recreational and tourism shipping, and to assist surveillance and patrol operations.

### TASK
Conduct a modern survey from York Sound linking to Montague Sound in the north. Identify and survey passages, and establish access routes to existing shore infrastructure.

### REQUESTING AGENCY
Western Australia (WA) Department of Transport

### STAKEHOLDERS
Defence, Government agencies (Customs, Fisheries, Immigration), Tourism/Recreational shipping

### SHIPPING
Cruise ships with draughts less than 9m, patrol vessels with draughts less than 3m, recreational vessels

### CONSIDERATIONS
General depth of water is less than 20m, unsurveyed and inadequately surveyed waters. Dangers to navigation may exist. High tidal range and strong tidal streams may exist.

### CHARTED ZOC
ZOC C & D

### MINIMUM ZOC REQUIRED
ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

### ESTIMATED SURVEY DAYS
42

### PREFERRED UNIT
HS with SMB

### OPTIMUM SURVEY PERIOD
Mar-May, Sep-Nov

### SURVEY SPECIFICATION
Order 1a

### CHARTS AFFECTED
AU415125, AU415124, Aus37, Aus729, Aus730, Aus320

### FY PRIORITISATION
2018-19, 2019-20
**PURPOSE**
To facilitate safe navigation of recreational and tourism shipping, and to assist surveillance and patrol operations

**TASK**
Conduct a modern survey across Montague Sound linking York Sound in the west and Admiralty Gulf in the east. Identify and survey passages, and establish access routes to existing shore infrastructure

**REQUESTING AGENCY**
WA Department of Transport

**STAKEHOLDERS**
Defence, Government Agencies (Customs, Fisheries, Immigration), Tourism/Recreational vessels

**SHIPPING**
Cruise ships with draughts less than 9m, patrol vessels with draughts less than 3m, recreational vessels

**CONSIDERATIONS**
Shallow water with isolated shoals. Dangers to navigation may exist in the unsurveyed section of the area. Sloping seafloor with a high tidal range and strong tidal stream

**CHARTED ZOC**
ZOC D

**MINIMUM ZOC REQUIRED**
ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

**ESTIMATED SURVEY DAYS**
60

**PREFERRED UNIT**
HS with SMB

**OPTIMUM SURVEY PERIOD**
Mar-May, Sep-Nov

**SURVEY SPECIFICATION**
Order 1a

**CHARTS AFFECTED**
AU415125, Aus728, Aus729, Aus320, Aus319

**FY PRIORITISATION**
2018-19, 2019-20
### 5. ADMIRALTY GULF

**PURPOSE**
To facilitate safe navigation of recreational and tourism shipping, and to assist surveillance and patrol operations

**TASK**
Conduct a modern survey in the approaches to Admiralty Gulf. Identify and survey passages, and establish access routes to existing shore infrastructure

**REQUESTING AGENCY**
WA Department of Transport

**STAKEHOLDERS**
Defence, Government Agencies (Customs, Fisheries, Immigration), Tourism/Recreational vessels

**SHIPPING**
Cruise ships with draughts less than 9m, patrol vessels with draughts less than 3m, recreational vessels

**CONSIDERATIONS**
General depth of water is less than 20m shoaling to 6m. Dangers to navigation may exist in the unsurveyed section of the area. Gently sloping seafloor with a high tidal range and strong tidal stream

**CHARTED ZOC**
ZOC C & D

**MINIMUM ZOC REQUIRED**
ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

**ESTIMATED SURVEY DAYS**
80

**PREFERRED UNIT**
HS with SMB

**OPTIMUM SURVEY PERIOD**
Mar-May, Sep-Nov

**SURVEY SPECIFICATION**
Order 1a

**CHARTS AFFECTED**
AU415126, AU415125, AU314125, Aus728, Aus318

**FY PRIORITISATION**
2018-19, 2019-20
### 6. HOLOTHURIA BANKS

**PURPOSE**  
To facilitate safe navigation of coastal shipping and to assist surveillance and patrol operations

**TASK**  
Conduct a modern survey of the coastal shipping route in the vicinity of Troughton Island

**REQUESTING AGENCY**  
AMSA

**STAKEHOLDERS**  
Defence, commercial shipping

**SHIPPING**  
Coastal shipping with draughts less than 6m, patrol vessels with draughts less than 3m, recreational vessels

**CONSIDERATIONS**  
General depth of water is less than 20m with isolated shoals. Dangers to navigation not expected but may exist. Sloping seafloor with a medium tidal range and tidal stream

**CHARTED ZOC**  
ZOC C & D

**MINIMUM ZOC REQUIRED**  
ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

**ESTIMATED SURVEY DAYS**  
55

**PREFERRED UNIT**  
SML Pair

**OPTIMUM SURVEY PERIOD**  
Apr, Sep-Nov

**SURVEY SPECIFICATION**  
Order 1a

**CHARTS AFFECTED**  
AU414126, AU314125, Aus319, Aus728, Aus318, Aus727

**FY PRIORITISATION**  
2017-18, 2019-20
7. SUNRISE BANK TO CAPE FOURCROY

PURPOSE: To facilitate safe navigation of international shipping transiting between Timor Sea and the northern approaches to Darwin

TASK: Conduct a modern survey of shipping routes. Conduct surveys of passages and establish access routes to existing shore infrastructure

REQUESTING AGENCY: AMSA

STAKEHOLDERS: Defence, commercial shipping, Port Melville

SHIPPING: International shipping with draughts less than 16m

CONSIDERATIONS: Relatively deep water with isolated shoals to 17m. Dangers to navigation not expected but may exist. Sloping seafloor with a low tidal range and minimal tidal stream

CHARTED ZOC: ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

MINIMUM ZOC REQUIRED: ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

ESTIMATED SURVEY DAYS: 90

PREFERRED UNIT: HS with SMB

OPTIMUM SURVEY PERIOD: Mar-May, Sep-Dec

SURVEY SPECIFICATION: Order 1b

CHARTS AFFECTED: AU411129, AU412129, AU412130, AU311128, Aus309, Aus310, Aus311, Aus22

FY PRIORITISATION: 2018-19
**PURPOSE**
To facilitate safe navigation and to assist surveillance and patrol operations

**TASK**
Conduct a modern survey of shipping routes. Conduct surveys of passages and establish access routes to existing shore infrastructure

**REQUESTING AGENCY**
Defence

**STAKEHOLDERS**
Defence, Government agencies (Customs, Fisheries, Immigration), Commercial Shipping

**SHIPPING**
Includes major, coastal and patrol shipping routes

**CONSIDERATIONS**
Relatively shallow water. Dangers to navigation not expected but may exist. Gently sloping seafloor with a low tidal range and minimal tidal stream

**CHARTED ZOC**
ZOC B, C & D

**MINIMUM ZOC REQUIRED**
ZOC A2 (depths less than 10m) ZOC B (depths greater than 10m)

**ESTIMATED SURVEY DAYS**
155

**PREFERRED UNIT**
HS with SMB, SML

**OPTIMUM SURVEY PERIOD**
Sep-Dec

**SURVEY SPECIFICATION**
Order 1b

**CHARTS AFFECTED**
Numerous

**FY PRIORITISATION**
2017-18, 2018-19
9. WESTERN APPROACHES TO TORRES STRAIT

PURPOSE
To facilitate safe navigation of international and coastal shipping

TASK
Conduct a modern survey of the priority areas and adjacent to poorly surveyed waters with depths less than 30 metres

REQUESTING AGENCY
AMSA

STAKEHOLDERS
Defence, Government agencies (Customs, Fisheries, Immigration) AMSA, Commercial Shipping

SHIPPING
International and coastal shipping with draughts less than 12m

CONSIDERATIONS
General depths of water range between 15m and 30m. Dangers to navigation not expected but may exist. Gently sloping seafloor with a low tidal range and minimal tidal stream

CHARTED ZOC
ZOC B, C & D

MINIMUM ZOC REQUIRED
ZOC A2

ESTIMATED SURVEY DAYS
230

PREFERRED UNIT
LADS, HS with SMB, SML

OPTIMUM SURVEY PERIOD
Nov-Apr

SURVEY SPECIFICATION
Order 1b

CHARTS AFFECTED
AU411141, AU412141, Aus700, Aus 701, Aus842

FY PRIORITISATION
2018-19
## 10. TORRES STRAIT

### PURPOSE
To facilitate safe navigation of coastal shipping and to assist surveillance and patrol operations as well as improving bathymetric data in support of fishing and environmental management in the region

### TASK
Conduct a modern survey of the priority areas

### REQUESTING AGENCY
Defence, AMSA, Commonwealth Scientific and Industrial Research Organisation (CSIRO)

### STAKEHOLDERS
Defence, Government agencies (Customs, Fisheries, Immigration), AMSA, Commercial shipping

### SHIPPING
Coastal shipping with draughts less than 8m

### CONSIDERATIONS
Relatively shallow water shoaling to less than 5m. Dangers to navigation may exist. Gently sloping seafloor with a low tidal range and minimal tidal stream

### CHARTED ZOC
ZOC C & D

### MINIMUM ZOC REQUIRED
ZOC A2 (depths less than 10m) ZOC B (depths greater than 10m)

### ESTIMATED SURVEY DAYS
N/A. This is an extensive survey area that will be progressed over a number of survey periods depending on national requirements

### PREFERRED UNIT
LADS, HS with SMB, SML

### OPTIMUM SURVEY PERIOD
Nov-Mar

### SURVEY SPECIFICATION
Order 1b

### CHARTS AFFECTED
Numerous

### FY PRIORITISATION
2018-19, 2019-20
### 11. BATUMATA POINT

**PAPUA NEW GUINEA**

__Australian Hydrographic Service__

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**Purpose:** To facilitate safe navigation of international shipping and provide alternative passages for coastal shipping

**Task:** Establish a safe passage for coastal shipping and patrol craft through the Sunken Barrier Reefs between Rodney Entrance and Orangerie Bay

**Requesting Agency:** Maritime Safety Committee - PNG

**Stakeholders:** Commercial shipping, Government agencies (National Maritime Safety Authority (NMSA))

**Shipping:** Coastal shipping with draughts less than 8m inside the reef, International Shipping outside the reef

**Considerations:** Relatively shallow water shoaling to less than 5m. Dangers to navigation exist in the surveyed and unsurveyed sections of the survey area. Sloping seafloor with a moderate tidal range and moderate tidal stream

<table>
<thead>
<tr>
<th>Charted ZOC</th>
<th>ZOC C &amp; D</th>
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<tr>
<td>Minimum ZOC Required</td>
<td>ZOC A2 (depths less than 10m) ZOC B (depths greater than 10m)</td>
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<tr>
<td>Estimated Survey Days</td>
<td>20</td>
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<tr>
<td>Preferred Unit</td>
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<td>Optimum Survey Period</td>
<td>Nov-Mar</td>
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<td>FY Prioritisation</td>
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</table>

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**NOT TO BE USED FOR NAVIGATION**
### PURPOSE

To facilitate safe navigation of international and coastal shipping

### TASK

Conduct modern surveys in the unsurveyed/poorly surveyed areas identified

### REQUESTING AGENCY

AMSA, Great Barrier Reef Marine Park Authority (GBRMPA), Defence

### STAKEHOLDERS

Commercial shipping, AMSA, Government agencies (GBRMPA, Customs, Fisheries, Immigration)

### SHIPPING

Includes major, coastal and patrol shipping routes

### CONSIDERATIONS

Relatively shallow water shoaling to less than 5m. Dangers to navigation may exist. Gently sloping seafloor with a low tidal range and minimal tidal stream

### CHARTED ZOC

ZOC B, C & D

### MINIMUM ZOC REQUIRED

ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

### ESTIMATED SURVEY DAYS

150

### PREFERRED UNIT

LADS, HS with SMB, SML

### OPTIMUM SURVEY PERIOD

Nov-Mar

### SURVEY SPECIFICATION

Order 1b

### CHARTS AFFECTED

Numerous

### FY PRIORITISATION

2017-18, 2018-19, 2019-20
## 13. SWAIN REEFS

**PURPOSE**
To facilitate safe navigation of international and coastal shipping

**TASK**
Conduct modern surveys in the unsurveyed/poorly surveyed areas identified

**REQUESTING AGENCY**
AMSA, GBRMPA, Defence

**STAKEHOLDERS**
Commercial shipping, AMSA, Government agencies (GBRMPA, Customs, Fisheries, Immigration)

**SHIPPING**
Includes major, coastal and patrol shipping routes

**CONSIDERATIONS**
Relatively shallow water shoaling to less than 5m. Dangers to navigation may exist. Gently sloping seafloor with a low tidal range and minimal tidal stream

**CHARTED ZOC**
ZOC B, C & D

**MINIMUM ZOC REQUIRED**
ZOC A2 (depths less than 20m) ZOC B (depths greater than 20m)

**ESTIMATED SURVEY DAYS**
150

**PREFERRED UNIT**
LADS, HS with SMB, SML

**OPTIMUM SURVEY PERIOD**
Nov-Mar

**SURVEY SPECIFICATION**
Order 1b

**CHARTS AFFECTED**
Numerous

**FY PRIORITISATION**
2017-18, 2018-19

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**SWAIN REEFS**
QUEENSLAND

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**AUSTRALIAN HYDROGRAPHIC SERVICE**

NOT TO BE USED FOR NAVIGATION
### PURPOSE
Improve freedom of manoeuvre for military vessels operating in the vicinity of Shoalwater Bay Military Exercise Area

### TASK
Conduct modern surveys in the poorly surveyed areas of Shoalwater Bay Military Exercise Area and approaches

### REQUESTING AGENCY
Defence

### STAKEHOLDERS
Defence

### SHIPPING
Vessels with draughts less than 10m

### CONSIDERATIONS
Relatively shallow water. Dangers to navigation not expected but may exist. Gently sloping seafloor with a medium tidal range and moderate tidal stream

### CHARTED ZOC
ZOC C & D

### MINIMUM ZOC REQUIRED
ZOC A2

### ESTIMATED SURVEY DAYS
80

### PREFERRED UNIT
SML Pair

### OPTIMUM SURVEY PERIOD
Oct-Nov

### SURVEY SPECIFICATION
Order 1b

### CHARTS AFFECTED
AU422149, AU322150, AU423149, AU423150, AU5261P1, AU5261P2, Aus822, Aus367, Aus260, Aus261, Aus490, Aus823

### FY PRIORITISATION
2018-19, 2019-20
**PURPOSE**
Improve charting within the Australian Antarctic Territory (AAT) in accordance with Antarctic Treaty Resolution No 5

**TASK**
Conduct modern surveys to identify an approach route to Mawson Station passing to the west of Vanhulsen Islands and south of Flat Islands. Conduct modern surveys offshore, as circumstances allow, of Storegg Bank

**REQUESTING AGENCY**
AAD, Defence

**STAKEHOLDERS**
AAD, Geoscience Australia, CSIRO

**SHIPPING**
AAD resupply vessels, tourist vessels

**CONSIDERATIONS**
Significant depth anomalies exist throughout the AAT. Dangers to navigation may exist

**CHARTED ZOC**
ZOC B, C & D

**MINIMUM ZOC REQUIRED**
ZOC A2

**ESTIMATED SURVEY DAYS**
89

**PREFERRED UNIT**
DGST with ASV

**OPTIMUM SURVEY PERIOD**
Dec-Apr

**SURVEY SPECIFICATION**
Order 1b

**CHARTS AFFECTED**
AU270060, AU 468063, AU468062, AU5600P1, Aus449, Aus599, Aus600, Aus4074

**FY PRIORITISATION**
The completion of this survey is dependent on the AAD shipping schedule and the ability to transport ASV or the availability of a vessel of opportunity capable of being fitted with Multi Beam Echo Sounder (MBES)
**PURPOSE**  
Improve charting within the AAT in accordance with Antarctic Treaty Resolution No 5  

**TASK**  
Conduct modern surveys in the outer approaches to Davis Station and the Rauer Group  

**REQUESTING AGENCY**  
AAD, Defence  

**STAKEHOLDERS**  
AAD, Geoscience Australia, CSIRO  

**SHIPPING**  
AAD resupply vessels, tourist vessels  

**CONSIDERATIONS**  
Significant depth anomalies exist throughout the AAT. Dangers to navigation may exist  

**CHARTED ZOC**  
ZOC B, C & D  

**MINIMUM ZOC REQUIRED**  
ZOC A2  

**ESTIMATED SURVEY DAYS**  
37  

**PREFERRED UNIT**  
DGST with ASV  

**OPTIMUM SURVEY PERIOD**  
Dec-Apr  

**SURVEY SPECIFICATION**  
Order 1b  

**CHARTS AFFECTED**  
AU270070, AU4602P0, Aus451, Aus602, Aus4074  

**FY PRIORITISATION**  
The completion of this survey is dependent on the AAD shipping schedule and the ability to transport ASV or the availability of a vessel of opportunity capable of being fitted with MBES
**PURPOSE**
Improve charting within the AAT in accordance with Antarctic Treaty Resolution No 5

**TASK**
Conduct modern surveys in the outer approaches to Casey Station and Petersen Bank

**REQUESTING AGENCY**
AAD, Defence

**STAKEHOLDERS**
AAD, Geoscience Australia, CSIRO

**SHIPPING**
AAD resupply vessels, tourist vessels

**CONSIDERATIONS**
Significant depth anomalies exist throughout the AAT. Dangers to navigation may exist

**CHARTED ZOC**
ZOC B, C & D

**MINIMUM ZOC REQUIRED**
ZOC A2

**ESTIMATED SURVEY DAYS**
216

**PREFERRED UNIT**
DGST with ASV

**OPTIMUM SURVEY PERIOD**
Dec-Apr

**SURVEY SPECIFICATION**
Order 1b

**CHARTS AFFECTED**
AU270100, AU4601P0, AU270110, AU5601P1, Aus454, Aus601, Aus4074

**FY PRIORITISATION**
The completion of this survey is dependent on the AAD shipping schedule and the ability to transport ASV or the availability of a vessel of opportunity capable of being fitted with MBES
<table>
<thead>
<tr>
<th><strong>PURPOSE</strong></th>
<th>Improve charting within the AAT in accordance with Antarctic Treaty Resolution No 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TASK</strong></td>
<td>Conduct modern surveys in the approaches to Cape Denison and Commonwealth Bay</td>
</tr>
<tr>
<td><strong>REQUESTING AGENCY</strong></td>
<td>AAD, Defence</td>
</tr>
<tr>
<td><strong>STAKEHOLDERS</strong></td>
<td>AAD, Geoscience Australia, CSIRO</td>
</tr>
<tr>
<td><strong>SHIPPING</strong></td>
<td>AAD resupply vessels, tourist vessels</td>
</tr>
<tr>
<td><strong>CONSIDERATIONS</strong></td>
<td>Significant depth anomalies exist throughout the AAT. Dangers to navigation may exist</td>
</tr>
<tr>
<td><strong>CHARTED ZOC</strong></td>
<td>ZOC B, C &amp; D</td>
</tr>
<tr>
<td><strong>MINIMUM ZOC REQUIRED</strong></td>
<td>ZOC A2</td>
</tr>
<tr>
<td><strong>ESTIMATED SURVEY DAYS</strong></td>
<td>28</td>
</tr>
<tr>
<td><strong>PREFERRED UNIT</strong></td>
<td>DGST with ASV</td>
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<tr>
<td><strong>OPTIMUM SURVEY PERIOD</strong></td>
<td>Dec-Apr</td>
</tr>
<tr>
<td><strong>SURVEY SPECIFICATION</strong></td>
<td>Order 1b</td>
</tr>
<tr>
<td><strong>CHARTS AFFECTED</strong></td>
<td>AU467142, AU468142, AU5603P1, Aus603, Aus4074</td>
</tr>
<tr>
<td><strong>FY PRIORITISATION</strong></td>
<td>The completion of this survey is dependent on the AAD shipping schedule and the ability to transport ASV or the availability of a vessel of opportunity capable of being fitted with MBES</td>
</tr>
</tbody>
</table>
### PURPOSE
Improve charting in the approaches to Macquarie Island

### TASK
Conduct a modern survey in the alternate anchorage area identified in Langdon Bay and approaches. Improve survey coverage to the north of Macquarie Island in the vicinity of Elliot Reef. Conduct modern surveys on the east coast of Macquarie Island commencing at known landing areas and expand existing coverage.

### REQUESTING AGENCY
AAD, Defence

### STAKEHOLDERS
AAD, Geoscience Australia, CSIRO

### SHIPPING
AAD resupply vessels, tourist vessels

### CONSIDERATIONS
Deep water shoaling to less than 10m. Dangers to navigation may exist. Sloping seafloor with low tidal range and minimal tidal stream

### CHARTED ZOC
ZOC B, C & D

### MINIMUM ZOC REQUIRED
ZOC A2

### ESTIMATED SURVEY DAYS
9

### PREFERRED UNIT
DGST with ASV

### OPTIMUM SURVEY PERIOD
Aug, Nov-Jan

### SURVEY SPECIFICATION
Order 1b

### CHARTS AFFECTED
AU455158, Aus604

### FY PRIORITISATION
The completion of this survey is dependent on the AAD shipping schedule and the ability to transport ASV or the availability of a vessel of opportunity capable of being fitted with MBES.
SURVEY REQUESTS AND ACTION TAKEN

SRAT are minor survey tasks the HSF complete while on transit or when inclement weather prevents progress of the primary tasking. SRAT generally involve the investigation of a charted hazard or reported danger to navigation. These tasks can originate as requests from mariners, however the majority are investigations of dangers to navigation that have already been reported by a Notice to Mariners (NtM) or through identified improvements necessary to update a chart or publication.

The resources and time allocation required to complete an SRAT will vary depending on the nature of the task, which will be considered during the operational planning phase. The conduct of an SRAT may reduce the number of survey days available to complete a primary survey task. SRATs are considered an important and valuable contribution to navigational safety and therefore those days dedicated to SRAT progression are considered as ‘Survey Days.’ The chartlet below illustrates the distribution of active SRAT.
The overall AHO charting capability is heavily prioritised. Capacity is primarily focused on responding to newly received information that has been risk assessed as having an immediate or near term potential maritime safety impact and therefore warrants immediate or quick charting action. This activity absorbs over 50% of available cartographic capacity.

The two highest levels of priority address the provision of risk-based maritime safety updates. Activities are entirely dependent upon the assessed level of risk associated with each and every item of hydrographically relevant information received by the AHO.

**Priority One** - Next Update (Next available ENC update / NtM edition cycle) - new or amended information that, if not promulgated promptly, has the potential to affect:

- the physical safety of shipping (grounding risk);
- traffic control measures (collision risk) and vessel movement (boarding and reporting points, anchorages, no anchoring); and/or
- operations in or near ports and major shipping (depths in constrained areas, changes of position of features greater than a ship’s accuracy of navigation).

**Priority Two** - Routine Update (a subsequent ENC update / NtM edition) - new or amended information that, if not promulgated as soon as practicable, has the potential to affect:

- the legally acceptable operation of vessels (changes to maritime boundary information or constraints upon activities in areas of high related activity); and/or
- the physical safety of vessels (grounding) in less accessible or less frequented areas.

**Priority Three** - Routine charting (next new edition ENC / paper chart) - charting projects as listed in HydroScheme.

Priority One and Two activities typically result in approximately 1100 ENC updates and equivalent NtM (for paper charts) annually.

**OVERALL ROUTINE CHARTING PRIORITIES**

Within the scope of routine chart production activities, overall priorities are:

- Shift production arrangements to a process of ‘ENC first’ philosophy, with paper charts to be derived from ENC – to reflect the progressive adoption of Electronic Chart Display and Information System (ECDIS) and ENC as the primary form of navigation for international commercial vessels, and the forecast of significantly reduced demand for paper charts by 2018.
- Respond to ENC and high density dataset requirements for new ports and expanded ports – as an enabler to national prosperity.
- Support ongoing requirements for PNG as part of the Memorandum of Understanding.
- Support ongoing requirements for Solomon Islands as part of the Memorandum of Understanding.
- Address feedback from mariners, IHO, International Maritime Organization (IMO) and other stakeholders regarding the excessive triggering of ECDIS alarms (inappropriate Restricted Areas), excessive chart clutter (too many Restricted, Cautionary and Administrative Areas) and ECDIS display issues (particularly display of names). This optimises safe navigation when using ENC.
• Address other charting requirements as resources permit using a theme or area–based project approach (rather than based upon individual paper charts). This promotes continual improvement in chart coverage and quality.

• Progressively refine and reissue all existing ENC as New Editions as a consequence of introducing new production systems, while taking the opportunity to address legacy inconsistencies between scales arising from initial content capture from paper charts. This permits consistent representation and generalisation through scale-less and scaled ENC layers and derives production efficiencies.

Noting that most commercial shipping using paper charts produced by the AHO will have transitioned to ENC by 2018, there is little long term requirement to re-scheme existing paper charts. Any further re-scheming will only be programmed where there is strong justification. Beyond 2018, a review of paper charts will be undertaken to ensure that they complement ENC, rather than specifically duplicate content and coverage.

**ENC PORTFOLIO IMPROVEMENT**

The AHO has achieved a first iteration of ENC coverage throughout the ACA. Consultation with AMSA and the maritime industry has identified a number of functional improvements to ENC required to support safety and efficiency, as detailed below.

**Coastal ENC**

As a minimum, coastal ENC will continue to have at least the same content within their area of coverage as the corresponding paper chart. An assessment of the AHO’s ability to produce timely ENC updates with available resources has resulted in a reduction in the number of coastal ENC containing one-metre contour intervals, bringing them back in direct alignment to corresponding paper charts with the more traditional 5, 10, 15, 20 metre contours.

**Port ENC**

Future new editions of ENC in ports and port approach areas will be driven by user feedback from mariners and port operators and will progressively diverge from the traditional ‘equivalency’ to paper charts. This reflects the freedom of ENC from traditional and often conflicting paper chart restrictions of scale, chart limits and chart extent, and that ENC are used quite differently to paper charts to support pilotage. Typically, port ENC will be re-schemed and recompiled where necessary to better provide:

• seamless coverage from the boarding ground or offshore anchorage to the furthest inshore berth;

• compilation scale of 1:4000 to 8000 for all dredged channels and manoeuvring areas, irrespective of scale in adjacent areas;

• Bathymetric ENC (bENC) containing high density depth contours at one metre increments or smaller as data quality and user needs dictate for all dredged channels and manoeuvring areas and their immediate surrounds. However, this is dependent upon production capacity.
CHARTING EFFICIENCY INITIATIVES

Transition to a new Integrated Bathymetric DataBase

The AHO will introduce a new integrated bathymetric database in 2017 as the means to create and maintain a single, highly detailed model of the seabed, from which all charted depths will be derived. This will fundamentally alter some roles traditionally performed by cartographers. Scripted de-confliction processes will achieve significant efficiency gains and will provide a systematic approach to integrating overlapping hydrographic surveys. In conjunction with new ENC production software the AHO will gain the technical capability to generate ENC with high density depth contours to meet emerging pilotage requirements within ports.

Transition to derivation of paper charts from ENC

The AHO will continue to progressively transition paper charts to be derived from the associated ENC as new editions are undertaken.

Chart Datums

The AHO aims to have the full portfolio of charts referenced to a single set of datums. This has now been achieved for horizontal positions (World Geodetic System 1984 (WGS84)). There are nine paper charts and corresponding ENC awaiting vertical adjustment to Lowest Astronomical Tide (LAT) to complete this process as well as a larger number which approximate LAT, but which currently require systematic adjustment between charted depths and predicted tides. These will be undertaken as resources permit, noting that use of a single set of datums reduces the need for data manipulation and potential sources of error.

CHARTING PROJECTS (ENC AND PAPER CHARTS)

Large scale port, channel and approach charts

Significant port developments in Dampier, Fremantle and Cockburn Sound, Brisbane River and Moreton Bay (including southward to the Gold Coast Seaway), Cairns, Townsville and Newcastle all require charting. Charts of these ports and approaches will include larger compilation scales and one metre depth contours. This will enable ships to set a more exact safety depth contour in their ECDIS or Portable Pilotage Unit (PPU) and will offer greater situational awareness of the searoom for ships to safely manoeuvre in these waters.

Medium scale coastal charts

• Dampier to Port Hedland. The 1:150,000 scale charts in this area require recompilation on LAT which will progress after the large scale port and approach charts are published (delayed from 2016-17).

• Coastal waters, PNG. The PNG NMSA has identified a number of areas to be surveyed with funding assistance from the Asian Development Bank. These surveys need to be incorporated to improve charting in the area for the cruise ship industry, coastal shipping and tourism in PNG.

• Coastal waters, New South Wales (NSW). The 1:150,000 charts do not yet include updated information already included in more recently produced 1:500,000 scale charts.

• North West Shelf, WA. HSF units are progressively surveying transit routes for cruise ships throughout the Kimberley region. These surveys continue to be added as they are received and cleared for charting action. Charting will include larger scale coverage of anchorage areas than is currently available.
• Routing chart, Torres Strait, QLD. AMSA has identified a requirement for a routing / planning chart for Torres Strait commencing from west of Gannet and Varzin Passages to the eastern end of Great North East Channel. This chart will include additional information previously contained in separate publications, presented in graphical form (delayed from 2016-17).

Solomon Islands

Charting of Solomon Islands will be undertaken in two phases. The first to be published, will largely replicate the content currently available from the United Kingdom Hydrographic Office (UKHO), with completion marking the transition of PCA on behalf of the SIMSA. These charts will include a number of improvements over those currently available, while ENC coverage will be restructured into a geographic grid pattern of adjoining cells to match Australian and PNG coverage.

The second phase will include more specific local requirements as defined by SIMSA.

CHARTING PROJECTS

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<td>Sydney and approaches</td>
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<td>5</td>
<td>Port Lincoln and approaches</td>
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<td>6</td>
<td>Papua New Guinea – various locations</td>
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<td>7</td>
<td>Albany and approaches</td>
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<td>8</td>
<td>North West Shelf – transit through Kimberley area</td>
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<td>Abbot Point and approaches</td>
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<td>10</td>
<td>Thevenard and approaches</td>
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<td>11</td>
<td>Daru and approaches</td>
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<td>12</td>
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<td>13</td>
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<td>14</td>
<td>INT chart refresh</td>
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<tr>
<td>15</td>
<td>Data driven ENC updates</td>
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NAUTICAL PUBLICATIONS AND PRIORITIES

The production of nautical publications by the AHO will continue, with new editions being released as resources permit, in the priority order below. Additionally, options to publish e-publications via the AHO website will be investigated.

- **Notices to Mariners** – provides warnings and new information regarding changes that are considered critical to safety of navigation or announce cessation of conditions that were the cause of a temporary hazard.

- **Australian National Tide Tables and AusTIDES** – enables ships to maximise use of the available depth of water as charted, as well as predicting tidal streams that could hazard a ship. The 2017 edition of Australian National Tide Tables (ANTT) has been a significantly restructured publication to improve ease of use and reduce the size of the publication.

- **Seafarers Handbook for Australian Waters** – provides information to mariners of the regulatory environment in which they must operate, as well as sources of information to assist in safe and lawful passage in Australian waters.

- **Chart and Publication Maintenance Handbook** – provides information to mariners using either the AusENC service or Australian-produced paper nautical charts on appropriate practices for keeping navigation outfits up-to-date.

### PUBLICATIONS PROGRAM

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<thead>
<tr>
<th>PUBLICATION</th>
<th>ACTIVITY</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>Notices to Mariners (AHP18)</td>
<td>Published fortnightly</td>
<td>Electronic (web) publication only</td>
</tr>
<tr>
<td>Australian National Tide Tables (AHP 11)</td>
<td>Published annually</td>
<td>ANTT will be significantly restructured over the 2017 and 2018 editions to improve ease of use</td>
</tr>
<tr>
<td>Seafarers Handbook for Australian Waters (AHP20)</td>
<td>Three year rolling program. 4th edition published 2016</td>
<td>Investigate release as an e-publication</td>
</tr>
<tr>
<td>Defence Nautical Charts, Publications and Maritime MGI Handbook (AHP15)</td>
<td>As required. 7th edition published 2016</td>
<td>Electronic (web) publication only. A new edition is planned for 2017-18 to refine the services provided to RAN vessels using Navigation Display System (NDS) and electronic publications, and progressive withdrawal of services no longer required</td>
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<tr>
<td>Australian Chart and Publication Maintenance Handbook (AHP24)</td>
<td>As required. 3rd edition published 2015</td>
<td>Electronic (web) publication only. A new edition will be undertaken in 2017-18 to incorporate a number of changes in services provided by the AHO. The publication will be split into two to separately cover ENC and paper charts</td>
</tr>
<tr>
<td>Australian Sailing Directions (NP 13-15)</td>
<td>No specific involvement</td>
<td>No longer a resourced AHO activity. While previous editions were drafted by AHO staff, subsequent updates have been derived from updates to published charts. They are dual badged and published by the UKHO</td>
</tr>
</tbody>
</table>

**WEB-BASED SERVICES**

The AHO will continue to provide the following services, with web-based delivery as the primary method. All publicly available web services are also made available to Defence on the Defence Protected Network.

- NtM published and updated fortnightly, downloadable by either full edition or selective part-download.
- ENC Updates (progressive and cumulative) to published AusENC, to be published fortnightly.
- ENC Base Disks (cumulative) for the AusENC service to be published every six months.
- Tidal Prediction Updates (cumulative) to the latest AusTIDES for new and amended tidal prediction information.
- Australian Chart Index (ACI) – graphical catalogue of all ENC and paper charts published by the AHO – withdrawn 2015, replaced by downloadable paper chart indexes.
- ENC List – a table-based list of detailed information and update status for every published ENC.
- Paper Chart List – a table-based list of detailed information and update status for every published paper chart, with links to every published NtM affecting each chart.
- Fact Sheets – simple user guides on various aspects of navigation and use of nautical charts, based upon frequently asked questions from professional and recreational mariners.

Additionally, the AHO will continue to work cooperatively with Geoscience Australia to ensure all permissible hydrographic data (i.e. data collected by the Commonwealth) is incorporated into high resolution seabed datasets to support research, preservation of the marine environment and other purposes. This data is available via the Geoscience Australia website and is being incrementally improved.

The AHO will establish Defence and public-facing web services, initially based upon individual data themes within published ENC, as resources permit.
### ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAD</td>
<td>Australian Antarctic Division</td>
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<tr>
<td>AAT</td>
<td>Australian Antarctic Territory</td>
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<tr>
<td>ACA</td>
<td>Australian Charting Area</td>
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<tr>
<td>ACI</td>
<td>Australian Chart Index</td>
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<tr>
<td>AGO</td>
<td>Australian Geospatial - Intelligence Organisation</td>
</tr>
<tr>
<td>AHO</td>
<td>Australian Hydrographic Office</td>
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<tr>
<td>AHP</td>
<td>Australian Hydrographic Publication</td>
</tr>
<tr>
<td>AMSA</td>
<td>Australian Maritime Safety Authority</td>
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<tr>
<td>ANTT</td>
<td>Australian National Tide Tables</td>
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<tr>
<td>ASV</td>
<td>Antarctic Survey Vessel</td>
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<tr>
<td>bENC</td>
<td>Bathymetric Electronic Navigational Chart</td>
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<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
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<tr>
<td>DGST</td>
<td>Deployable Geospatial Support Team</td>
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<tr>
<td>ECDIS</td>
<td>Electronic Chart Display and Information System</td>
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<tr>
<td>ENC</td>
<td>Electronic Navigational Chart</td>
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<tr>
<td>FY</td>
<td>Financial Year</td>
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<tr>
<td>GBRMPA</td>
<td>Great Barrier Reef Marine Park Authority</td>
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<tr>
<td>HIPP</td>
<td>HydroScheme Industry Partnership Program</td>
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<tr>
<td>HQJOC</td>
<td>Headquarters Joint Operations Command</td>
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<tr>
<td>HS</td>
<td>Hydrographic Ship</td>
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<tr>
<td>HSF</td>
<td>Hydrographic Survey Force</td>
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<tr>
<td>IHO</td>
<td>International Hydrographic Organization</td>
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<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
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<tr>
<td>INT</td>
<td>International Series</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicator</td>
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<tr>
<td>LADS</td>
<td>Laser Airborne Depth Sounder</td>
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<tr>
<td>LAT</td>
<td>Lowest Astronomical Tide</td>
</tr>
<tr>
<td>MBES</td>
<td>Multi Beam Echo Sounder</td>
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<tr>
<td>MGI</td>
<td>Military Geospatial Information</td>
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<tr>
<td>MSC</td>
<td>Maritime Safety Committee</td>
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<tr>
<td>NDS</td>
<td>Navigation Display System</td>
</tr>
<tr>
<td>NMSA</td>
<td>National Maritime Safety Authority</td>
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<td>NP</td>
<td>Nautical Publication</td>
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<tr>
<td>NSW</td>
<td>New South Wales</td>
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<tr>
<td>NtM</td>
<td>Notices to Mariners</td>
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<tr>
<td>PCA</td>
<td>Primary Charting Authority</td>
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<tr>
<td>PNG</td>
<td>Papua New Guinea</td>
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<tr>
<td>PPU</td>
<td>Portable Pilotage Unit</td>
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<tr>
<td>RAN</td>
<td>Royal Australian Navy</td>
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<tr>
<td>SDP</td>
<td>Survey Days Planned</td>
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<tr>
<td>SIMSA</td>
<td>Solomon Islands Maritime Safety Administration</td>
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<tr>
<td>SMB</td>
<td>Survey Motor Boat</td>
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<tr>
<td>SML</td>
<td>Survey Motor Launch</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>SOLAS</td>
<td>International Convention for the Safety Of Life At Sea</td>
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<tr>
<td>SRAT</td>
<td>Survey Requests Action Taken</td>
</tr>
<tr>
<td>UKHO</td>
<td>United Kingdom Hydrographic Office</td>
</tr>
<tr>
<td>UNCLOS</td>
<td>United Nations Convention of the Law of the Sea</td>
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<tr>
<td>WA</td>
<td>Western Australia</td>
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<tr>
<td>WGS84</td>
<td>World Geodetic System 1984</td>
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<tr>
<td>ZOC</td>
<td>Zone Of Confidence</td>
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