





AUSTRALIAN CHART & PUBLICATION MAINTENANCE HANDBOOK 2nd Edition

Commonwealth of Australia 2013

OFFICIAL NAUTICAL CHARTS AND PUBLICATIONS hydro.gov.au



Australian Chart & Publication Maintenance Handbook Edition 2.02

Compiled by Australian Hydrographic Service

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Important Notice

This publication includes all significant nautical information obtained by the AHS at date of production. Significant information is updated by Australian Notice to Mariners. All reasonable efforts have been made to ensure the accuracy and completeness of the information, including third party information, incorporated in this publication. The AHS regards third parties from which it receives information as reliable, however, the AHS cannot verify all such information and errors may therefore exist. The AHS does not accept liability for errors in third party information or the inappropriate use of this publication.

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Preface

The Australian Chart and Publication Maintenance Handbook provides information to assist mariners to maintain navigational chart outfits (both paper and electronic) and nautical publications. This book will also assist the mariner with maintaining appropriate records suitable for an external inspection.

National and international regulations governing SOLAS and other commercial vessels, including naval vessels, all require up to date nautical charts and publications. These regulations all recognise that, unlike a topographic map, a mariner can only see a small fraction of the features and dangers that lie ahead, as the remainder are submerged. Therefore, mariners need to place a much higher degree of faith in their chart than a navigator on land. This faith must not be misplaced.

Consequently, this publication is a result of collaboration between the Australian Hydrographic Service and the following contributors:

Australian Maritime College - Launceston

Australian Maritime Safety Authority

Royal Australian Navy - HMAS Watson Navigation Faculty

United Kingdom Hydrographic Office

Enquiries or suggestions regarding this publication should be directed to hydro.RAC@defence.gov.au

Brett Brace Commodore, RAN Hydrographer of Australia Australian Hydrographic Service 8 Station Street Wollongong NSW 2500 www.hydro.gov.au

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Chapter 1) GENERAL INFORMATION

1.1 Why do Nautical Charts and Publications Need to be Updated?

- 1. It is important for nautical charts (electronic and paper) and publications to be the latest published edition and to be kept up to date for Notices to Mariners (NtM). Uncorrected charts and publications do not contain the latest navigational safety critical information.
- 2. Nautical charts and publications are 'living' documents. Information affecting the safety of navigation for mariners is being received constantly. For example: an individual report of a newly discovered danger, a buoy or beacon has been moved or removed, while other times the change can be as large as an entire new survey. In all cases, national hydrographic authorities have an obligation to publish details of new and altered information affecting the potential safety of mariners. Equally, certain mariners have a legal obligation to apply these updates to their charts and publications, or to ensure the latest electronic update is loaded into their system. Many marine accident investigations show that up to date charts and publications are essential for all ocean going vessels, particularly when operating in coastal waters and in the vicinity of ports.
- 3. Australian NtM are published by the Australian Hydrographic Service (see Ch.2).

1.2 Australian Hydrographic Service

- 1. The Australian Hydrographic Service (AHS) is part of the Royal Australian Navy. It is responsible for providing Australia's national charting service as specified in the <u>International Convention for Safety of Life at Sea</u> (SOLAS) and the <u>Navigation Act 2012</u>. The AHS is also responsible for providing direct support to the Australian Defence Force (ADF) for the provision of hydrographic, charting, oceanographic and meteorology services. The core activities of the AHS are:
 - provide Hydrographic Services to the Nation:
 - meet Australia's obligations for the provision of nautical products and services as the national hydrographic authority to:
 - enable safe navigation
 - support national infrastructure and maritime trade
 - satisfy international obligations under SOLAS and <u>United Nations Convention on Law of</u> the Sea (UNCLOS)
 - support the protection of the marine environment
 - contribute to data exchange arrangements and standards to the benefit of mariners and other geospatial data user.
 - provide Hydrographic advice to Government and Defence, including:
 - standards for hydrographic surveying and nautical information impacting safety of navigation
 - competency standards for hydrographic surveyors and nautical cartographers impacting safety of navigation
 - strategic oversight of the Royal Australian Navy's Hydrographic, Meteorological and Oceanographic capability.
 - provide maritime military geospatial information to Defence:
 - acquire, manage, produce and deliver hydrographic, meteorological and oceanographic information to:

- enable freedom of manoeuvre in Australia's maritime domain
- enable Australian Defence Force assets to exploit the above and below the water physical operating environment for strategic, operational and tactical advantage.
- provide strategic guidance to the Fleet Command on:
 - national survey tasking
 - data collection quality standards
 - hydrographic training requirements.
- 2. The AHS is located in Wollongong, New South Wales. All correspondence should be directed to:

Postal address:	Locked Bag 8801, Wollongong NSW 2500	
Telephone:	+61 2 4223 6500	
Fax:	+61 2 4223 6599	
email addresses:		
Charting and publication suggestions, Notices to Mariners - enquiries,		
reports and feedback:	hydro.NtM@defence.gov.au	
Products - wholesale orders and enquiries:	hydro.sales@defence.gov.au	
Website:	www.hydro.gov.au	

1.3 Official Nautical Charts and Publications

- Official nautical charts and publications are those issued officially by, or on the authority of, a Government, authorised Hydrographic Office or other relevant institution, and designed to meet the requirements of marine navigation. In Australia, the relevant hydrographic authority is the Australian Hydrographic Service (AHS) (see <u>Navigation Act 2012</u> (Cth) Chapter 6 Part 6 Division 5), Official nautical products published by the AHS include:
 - paper nautical charts
 - electronic charts (AusENC and Australian ENC)
 - Notices to Mariners (NtM)
 - Australian National Tide Tables and AusTides
 - Seafarers Handbook for Australian Waters
 - Australian Chart and Publications Maintenance Handbook.

1.3.1 Reproductions and Copies of Paper Charts

- 1. The <u>United Kingdom Hydrographic Office</u> (UKHO) reproduces selected Australian Nautical Charts under licence and these are authorised for use by commercial vessels of all sizes. They still carry an AUS number. Reproduced charts are listed in the British Admiralty (BA) Chart Catalogue and can be identified by the publication details in the lower margin of each chart. However Australian charts which are not reproduced by the UKHO are not listed in their catalogue. Masters should therefore be aware that a more appropriate Australian Nautical Chart at a larger scale may be available than is listed in the BA Chart Catalogue, or shown as an adjoining chart on the BA reproduction.
- 2. Some State marine and maritime safety organisations also produce boating maps, though these are suitable for recreational use only. A small number of commercial organisations sell reduced scale copies of old US copies of Australian charts. However, as US authorities ceased copying Australian charts in the early 2000's,

these reduced scale copies of copies are now very out of date and should not be relied upon. They are not authorised for use by commercial vessels of any size.

1.4 What Charts and Publications Need to be Carried

1. Legal obligations are placed on certain mariners to carry official nautical charts and publications that are up to date for NtM. For other mariners it is recommended good practice.

1.4.1 International Convention for the Safety of Life at Sea (SOLAS)

- 1. The International Convention for the Safety of Life at Sea (SOLAS) Chapter V requires that vessels (other than fishing vessels) greater than 500 tonnes, or vessels greater than 150 tonnes when engaged on international voyages, carry up to date official charts, sailing directions, list of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage. The International Maritime Organization (IMO) also requires that the master or officer in charge of navigation use the largest (most detailed) scale charts for the intended route, corrected with the latest available information.
- 2. SOLAS Chapter V References:
 - Regulation 2 Definitions
 - Regulation 9 Hydrographic services
 - · Regulation 19 Shipborne Navigational Equipment and Systems (Extract)
 - Regulation 27 Nautical Charts and Nautical Publications (Extract)

1.4.2 Navigation Act 2012

- 1. The <u>Navigation Act 2012</u> provides the legislative basis for many of the Australia's responsibilities for maritime matters including ship safety, seafarers, marine accidents, aids to navigation and shipboard aspects of the marine environment. The Act also gives effect to relevant international conventions.
- 2. Reference to charts and publications are:
 - Chapter 6, Part 6, Division 5 The Australian Hydrographic Services and Offences and civil penalties relating to taking a vessel to sea without charts.

1.4.3 Australian Maritime Safety Authority Marine Orders and Notices

- 1. The following Marine Orders / Notices are issued under the *Navigation Act 2012*. Mariners are to refer to:
 - Marine Order 21 (Safety of Navigation and Emergency Procedures) 2012
 - Marine Notice 11 / 2012 Guidance on ECDIS for ships calling at Australian ports.

1.4.4 Other Commercial Vessels Operating in Australia

- Commercial vessels operating solely within Australian waters or only between Australian ports are now bound by the <u>Marine Safety (Domestic Commercial Vessel) National Law Act 2012</u> (the National Law). This commenced operation on 1 July 2013.
- 2. It replaces eight existing federal, State and Territory laws with a single law for the safety of all commercial vessels and their crew in Australian waters. It sets the National Standard for Commercial Vessels as the national standard for domestic commercial vessel construction, operation and seafarer qualifications. It also establishes AMSA as the single National Regulator for commercial vessel safety.

3. New vessels are required to comply with the National Standards for Commercial Vessels (NSCV), while existing vessels are required to comply with a mixture of the standards and the older Uniform Shipping Laws (USL). Specific details may be found at the following website.

www.nationalsystem.amsa.gov.au/standards.php
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- 4. Specific requirements for carriage of nautical charts and publications are contained within Parts B and C (Section 7) of the NSCV.
- 5. State or Territory authorities can be contacted regarding areas nominated as Smooth and Partially Smooth Waters within their respective jurisdictions.

Carriage Requiremen	Carriage Requirements - NSCV Part C, Section 7C					
Operational Area and vessel length (Note 1)	All areas vessels 35m and over	Area A vessels 24m and over	Area A Vessels under 24m	Area B vessels under 35m	Area C vessels under 35m	Areas D & E vessels under 35m
ECDIS or ECS (using official ENC or RNC) or Paper Nautical Charts (Note 2, 3)	Comply with AMSA Marine Orders Part 21	Comply with AMSA Marine Orders Part 21	ECDIS or ECS or paper nautical charts required iaw NSCV	ECDIS or ECS or paper nautical charts required iaw NSCV	ECDIS or ECS or paper nautical charts required iaw NSCV	eccols or eccs or paper nautical charts required for vessels 12m and over (Note 4)
Nautical Publications	Comply with AMSA Marine Orders Part 21	Comply with AMSA Marine Orders Part 21	NPs required iaw NSCV	NPs required iaw NSCV	NPs required iaw NSCV	NPs required iaw NSCV

Notes:

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- 1. See Operational Areas Table for definitions of these areas.
- Nautical charts and publications, including paper Nautical Charts, manuscript publications, digital publications, official ENC and official RNC, shall be those originated by a relevant government authority or an authorized national Hydrographic Office (Annex B to NSCV Part C, Section 7C).
- 3. Using the ECDIS or ECS options includes the requirement for backup (Table 2 and Annex C to NSCV Part C, Section 7C).
- 4. It is good operational practice to carry appropriate paper Nautical Charts on vessels less than 12 metres in length operating outside port or harbour limits (Table 2 of NSCV Part C, Section 7C).

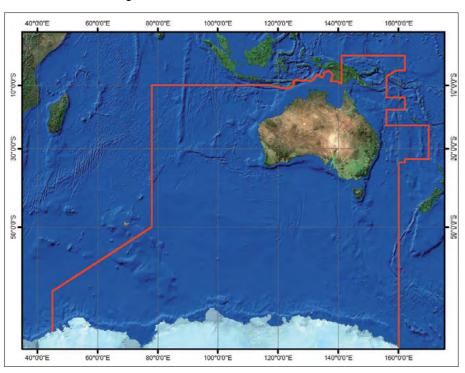
Operational A	Operational Areas - NSCV Part B		
Area A	unlimited domestic operations, including operations greater than 200 nautical miles to seaward of the coast.		
Area B	operations within a limit of 200 nautical miles to seaward of the coast; or within such lesser limits as may be specified.		
Area C	operations within: a) 30 nautical miles from the seaward limit of a safe haven, including designated smooth or partially smooth waters (i.e. sheltered waters), or within such lesser limits as may be specified; or b) specified waters designated by the Authority as "restricted offshore".		
Area D	operations within specified geographical limits in waters designated by the Authority as partially smooth waters.		
Area E	operations within specified geographical limits in waters designated by the Authority as smooth waters (see also Clause 1.8 - definition of smooth waters).		

3. State or Territory Authorities can be contacted regarding areas nominated as Smooth and Partially Smooth Waters within their respective jurisdictions.

1.4.5 Recreational Vessels

1. In New South Wales, Northern Territory and South Australia it is a requirement to carry an official chart when going offshore or beyond smooth waters. In all other states it is recommended as good practice.

Australian Charting Area



1.5 Australian Charting Area and Chart Series

1. The AHS currently publishes approximately 450 official Paper Nautical Charts and over 850 official Electronic Navigational Charts. Coverage includes Australia, Papua New Guinea, Timor Leste and the Australian Antarctic Territory.

1.5.1 Australian Chart Index

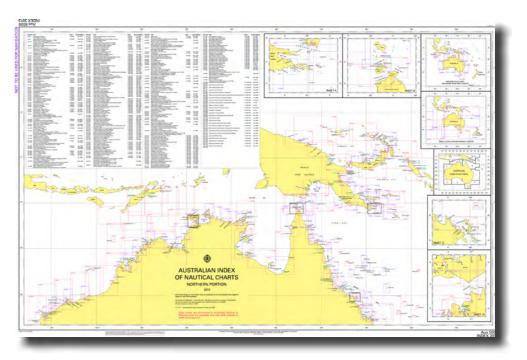
1. The Australian Chart Index (ACI) provides an online catalogue of Australian Paper Nautical Charts, Australian ENC and RNC packs. The ACI can be found on the AHS website:

Website link: <u>www.hydro.gov.au/prodserv/paper/charts.htm</u>

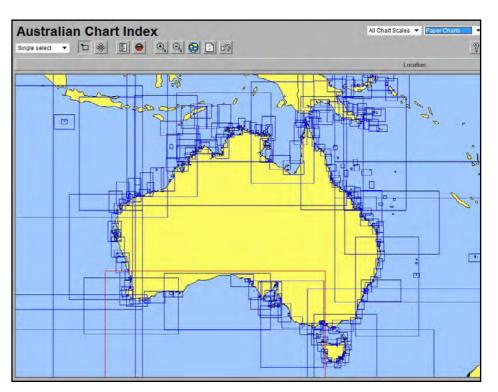
- 2. The ACI is available in three versions:
 - <u>Standard ACI</u> provides both paper Australian Paper Nautical Chart and Australian ENC cell lists in a text based format, and provides a fast reference tool when the ENC or chart number is known. The Standard ACI provides links to all extant Notices to Mariners.
 - Advanced ACI displays paper chart, Australian ENC cell and RNC pack boundaries on a zoom-in/zoom-out map using selectable information layers.
 - GoogleEarth[™] ACI displays Australian ENC cell boundaries and low resolution images of paper charts that can be overlaid on GoogleEarth[™] satellite maps using selectable information layers.
- 3. All three ACI formats enable mariners to find information about each chart including current edition date and all Permanent, Temporary and Preliminary NtM applicable to the current edition.

- 4. The index of Australian and International charts are also contained in two paper sheets, published annually, as follows:
 - Aus 5000 Australian Index of Nautical Charts Northern Portion
 - Aus 5001 Australian Index of Nautical Charts Southern Portion.

Aus 5000 - Australian Index of Nautical Charts - Northern Portion



Australian Chart Index on AHS Website



1.5.2 Australian Nautical Publications List

1. A list of Australian Nautical Publications can be found in Chapter 5, Nautical Publications, Section 5.2.1 page 28. Further information can also be found on the AHS website.

Website link:	www.hydro.gov.au/prodserv/prodserv.htm
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1.5.3 Distribution Agents

1. A list of accredited distributors for AHS nautical charts and publications can be found on the AHS website.

Website link:	http://www.hydro.gov.au/webapps/jsp/agents/agents-list.jsp

1.6 Reporting Discrepancies on Nautical Charts and Publications

- 1. Mariners are encouraged to report on any changes, discrepancies or omissions from charts and publications. The information will be used to improve safety of navigation by updating existing charts, Sailing Directions and other navigation products in both the Australia's Charting Area and worldwide. Reporting may include:
 - changes to lights, buoys and beacons
 - · new and newly discovered obstructions
 - safe routes through poorly charted waters and safe anchorages not charted
 - any errors or omissions in navigation products.
- 2. Reports are acceptable in any style or form that best suits the writer. Rough but legible handwritten reports and emails are quite acceptable.
- 3. The AHS recommends completing a <u>Hydrographic Note</u> which can be completed online or downloaded as a PDF.

Website link:	www.hydro.gov.au/feedback/feedback-hydronote.htm
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4. Reports can be forwarded to the AHS via:

By post to:	Manager Nautical Assessment and Maintenance Australian Hydrographic Service Locked Bag 8801 Wollongong NSW 2500	
Telephone:	+61 2 4223 6500	
Fax:	+61 2 4223 6599	
Online at:	www.hydro.gov.au	
email:	hydro.NtM@defence.gov.au	

1.7 Australian Defence Force

- 1. Australian Nautical Publication AHP 15 specifies nautical chart and publication requirements for the Australian Defence Force (ADF). This publication is available for download from the AHS Intranet / Defweb in PDF.
- 2. AHP 15 includes:
 - Hydrographic Products / ordering procedures forms, time frames etc.
 - folios

- · chart stowage
- Navigation Display System (NDS)
- · chart outfit validation
- ADF log sheets.

Chapter 2) NOTICES TO MARINERS

2.1 Introduction

- Notices to Mariners (NtM) are the means by which all national hydrographic offices provide the latest safety critical information to mariners. Australian NtM are the authority for correcting Australian Paper Nautical Charts and Australian Nautical Publications and for determining the current edition of each chart and publication.
- 2. NtM are published fortnightly to correct and maintain the following products:
 - Australian Paper Nautical Charts
 - Australian Annual Notices to Mariners
 - Australian National Tide Tables
 - Seafarers Handbook for Australian Waters.
- 3. In addition they notify mariners of:
 - the release or withdrawal of Australian Nautical Products
 - the release or withdrawal of Admiralty Nautical Publications (United Kingdom products) covering the Australian Charting Area and adjacent areas.
- 4. The same information promulgated via NtM is also included in updates to Electronic Navigational Charts (ENC). Procedures for updating ENC can be found in Chapter 4 on page 22.

2.1.1 How to Obtain Australian Notices to Mariners?

- 1. Copies of Australian NtM are available free of charge from the Australian Hydrographic Service (AHS) website, through the free eNotices service and from AHS Chart Distribution Agents that provide a paper NtM service on a cost recovery basis.
- 2. The following NtM services can be accessed from the AHS website:

Fortnightly Notices to Mariners Editions, Tracings and Blocks	PDF files	www.hydro.gov.au/n2m/notices.htm#view
Fortnightly Supplements BA Supplement Cumulative List Temporary and Preliminary Notices	PDF files	www.hydro.gov.au/n2m/notices.htm#view
Annual Notices to Mariners	PDF files	www.hydro.gov.au/n2m/notices.htm#annual
eNotices (Fortnightly Notices to Mariners and Annual Notices to Mariners)	Customised email service	Subscribe at: www.hydro.gov.au/enotices/enotices.htm
A List of all applicable Permanent, Temporary and Preliminary Notices to Mariners for each current paper (and RNC) chart	View on screen. Click on view in the details column	Available from the 'Details' section of the Standard Australian Chart Index, Paper Chart List www.hydro.gov.au/webapps/jsp/charts/chartlist.jsp

Note:

All NtM editions are available from 1997 onwards on the website. NtM blocks and notes are available from 1999 and NtM tracings are available from 2001.

2.2 Annual Notices to Mariners (PDF)

- 1. The <u>Annual Notices to Mariners (ANtM)</u> is issued each January to promulgate textual information to complement Australian Paper Nautical Charts. ANtM contain general information such as Search and Rescue arrangements, Military Exercise Areas specific to the Australian region.
- 2. ANtM reproduce the Temporary (T) and Preliminary (P) notices in force on 1 January of that year. The notices are currently numbered from 1 to 27.
- 3. Chart notes published on Australian Paper Nautical Charts may refer to the ANtM for further information. The subject of each notice is listed below:

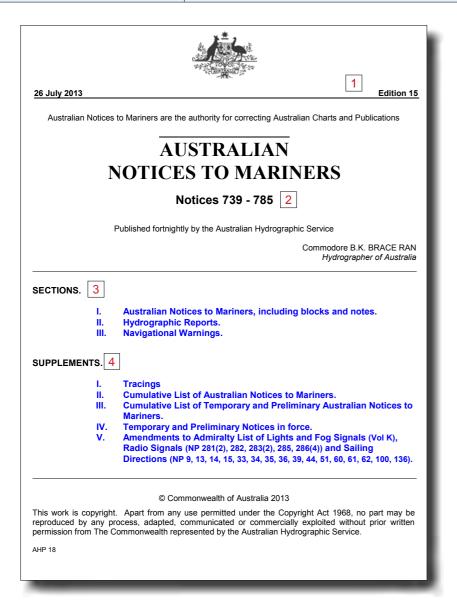
1 2 3 4 4 4 4 4 5 5 6 7 7	Subject Australian Charting and Notices to Mariners Distributors for the Sale of Australian Navigational Products Laser Airborne Depth Sounder Search and Rescue The Australian Ship Reporting System (AUSREP) Modernised Australian Ship Tracking and Reporting System (MASTREP) HF and VHF Marine Radio Services for Small Caft The AMVER Organisation (Automated Mutual Assistance Vessel Rescue System) Global Maritime Distress and Safety System (GMDSS) Maritime Safety Information
2 3 4 4 4A 4B 4C 5 6 7 7	Distributors for the Sale of Australian Navigational Products Laser Airborne Depth Sounder Search and Rescue The Australian Ship Reporting System (AUSREP) Modernised Australian Ship Tracking and Reporting System (MASTREP) HF and VHF Marine Radio Services for Small Caft The AMVER Organisation (Automated Mutual Assistance Vessel Rescue System) Global Maritime Distress and Safety System (GMDSS). Maritime Safety Information
3 4 4A 4B 4C 5 6 7 8	Laser Airborne Depth Sounder Search and Rescue The Australian Ship Reporting System (AUSREP) Modernised Australian Ship Tracking and Reporting System (MASTREP) HF and VHF Marine Radio Services for Small Caft The AMVER Organisation (Automated Mutual Assistance Vessel Rescue System) Global Maritime Distress and Safety System (GMDSS). Maritime Safety Information
4 4A 4B 4C 5 6 7 3	Search and Rescue
4A 4B 4C 5 6 7 8	The Australian Ship Reporting System (AUSREP) Modernised Australian Ship Tracking and Reporting System (MASTREP) HF and VHF Marine Radio Services for Small Caft The AMVER Organisation (Automated Mutual Assistance Vessel Rescue System) Global Maritime Distress and Safety System (GMDSS). Maritime Safety Information
4B 4C 5 6 7 8	Modernised Australian Ship Tracking and Reporting System (MASTREP) HF and VHF Marine Radio Services for Small Caft The AMVER Organisation (Automated Mutual Assistance Vessel Rescue System) Global Maritime Distress and Safety System (GMDSS)
4C 5 6 7 8	HF and VHF Marine Radio Services for Small Caft
5 6 7 8	The AMVER Organisation (Automated Mutual Assistance Vessel Rescue System)
6 7 8 9	Global Maritime Distress and Safety System (GMDSS)
7 3 9	Maritime Safety Information
3	
9	
	Inmarsat-C EGC System
9A	Firing Practice and Exercise Areas
	Firing Practice and Exercise Areas in Papua New Guinea
	Differential GPS
	Radar Beacons (RACONS)
	Torres Strait Tide Gauges
	Hydrographic Notes
	Areas Dangerous Due to Mines and Unexploded Ordnance
2A	Dumping Grounds
3	Oceanographic Data Acquisition System (ODAS)
	Submarine Cables and Pipelines
5	Oil Rigs and Offshore Structures
	Traffic Separation Schemes
7	Symbols used in Australian charts
8	Caution with Regard to Ships Approaching Formations etc
9	Information Concerning Submarines
.0	Quarantine (Pratique) and Ballast Water Pre-Arrival Report for Vessels
	Navigation in the Great Barrier Reef and Torres Strait
	Mandatory Ship Reporting System – Covering the Torres Strait region and the Inner Route of the Great Barrier Reef
3	Great Barrier Reef and Torres Strait Pilotage Services
	Dumping Waste at Sea
	Requirements for Reporting Pollution Incidents
	Disposal of Garbage at Sea
	General Notice
	Temporary and Preliminary Notices

2.3 Fortnightly Notices to Mariners (PDF)

- Charts and publications should be corrected by <u>fortnightly NtM</u> to ensure they are fully up to date with the latest safety critical navigational information. Editions of NtM are published on the AHS website for download on Friday of each fortnight.
- 2. The content of NtM is explained in the remaining paragraphs of this chapter. How to apply a notice to a paper chart and publication is explained in Chapter 3.2 page 13 and Chapter 5.4 page 29.

3. The accuracy of latitude and longitude positions published in NtM will vary depending on the scale of the chart. Positions are always written in degrees, minutes and decimal minutes. The table below is a guide only, there may be exceptions.

Scale of Chart	Accuracy
Larger than 1:50 000	3 decimal minutes
1:50 000 to 1:500 000	2 decimal minutes
Smaller than 1:500 000	1 decimal minute



Notes

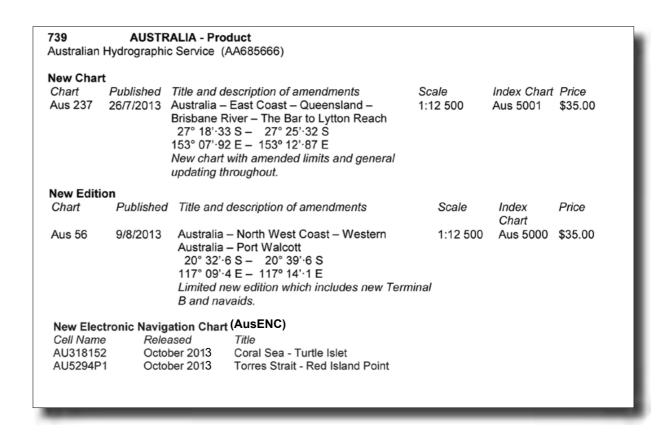
- 1. Edition Number Australian Notices to Mariners are numbered from 1 onwards and are published in 25 fortnightly editions each calendar year
- 2. Notice numbers Permanent, Temporary and Preliminary Notices are numbered from 28 onwards each calendar year. The first and last notice number contained in each edition is indicated on the front cover of the publication.
- 3. Sections Refer to 2.3.1.
- 4. Supplements Refer to 2.3.4.

2.3.1 Section I - Australian Notices to Mariners, Including Blocks and Notes

1. The following information is published in Section 1 of NtM:

Notification of New Charts and New Editions

2. Charts superseded by New Editions and New Charts are promulgated by NtM as shown in the example below. Superseded charts are not maintained by NtM and should not be used for navigation.



Charts Permanently Withdrawn

3. Charts are permanently withdrawn on publication of a New Chart or New Edition (same chart number). Charts are 'permanently withdrawn charts without replacement', when a new chart of similar, or improved, coverage is released with a different number. Withdrawn charts should <u>not be used for navigation</u>.

```
Chart permanently withdrawn
           On publication of new chart
Chart
Aus 237
          Aus 237
Aus 802
          Aus 802
Chart to be permanently withdrawn without replacement
Chart
              On publication of new chart/edition
Aus 414
              Aus 4723
              Aus 4723
Aus 415
              Aus 4723 and Aus 4725
Aus 416
Aus 417
              Aus 4723 and Aus 4725
For further details refer to the AHS website at www.hydro.gov.au for new edition and new chart stock arrival information.
When placing orders with a chart agent, mariners should advise whether their order pertains to the current edition or the new
```

Notification of a New Publication or New Edition

4. This notification can be for Australian or Admiralty publications. Once the New Edition is received, superseded publications should be archived or destroyed. Superseded editions should <u>not be used for navigation</u>.

Seafarers Handbook for Australian Waters				
		Recommended Retail		
No AHP 20	Title Seafarers Handbook Handbook for Australian Waters	Price (incl GST)	Remarks	
AIII 20	(Third Edition)	\$59.95	Edition 2 of AHP 20 is cancelled.	

Amendments to Australian Nautical Publications

5. Corrections to the Seafarers Handbook for Australian Waters, Australian Tide Tables and Annual Notices to Mariners are listed in Section I. Corrections are promulgated for current editions only.

```
AUSTRALIA - Product - Amendment to Australian National Tide Tables 2013

Australian Hydrographic Service (AA688485, AA688486)

Page xxx
Amend
Brisbane Bar To Chart Datum AUS 237 NC 26 JUL 2013 0.0

Brisbane Bar To Chart Datum AUS 238 NE 31 MAY 2013 0.0

Page 384
Amend
East Moncoeur I. (Port No 60615) To Chart Datum to 0.0

Curtis I. (Port No 60617) To Chart Datum to 0.0
```

Permanent Notices

The last notice applied to the chart

6. This notice is issued for the prompt dissemination of permanent navigational information considered important to safe navigation. The star (*) adjacent to the notice number indicates that the notice is based on data sourced within Australia. A notice without a star will indicate a reproduction of a foreign NtM.

Source: where the information came from AUSTRALIA - NEW SOUTH WALES - Botany Bay - Infrastructure; light buoy; obstruction Former Notices - 1139(T)/2011, 297(T)/2013 are cancelled Sydney Ports Corporation (AA680891) Aus 196 [1021/2012] 151° 12'.5 E 33° 58'.6 S accompanying block north cardinal pillar light buoy, Q, with topmark 33° 57'.525 S 151° 12'.050 E 33° 57'.575 S 151° 12'.040 E danger line with legend Obstn, between 33° 57'.530 S 151° 12'.040 E 33° 57'.530 S 151° 12'.045 E 33° 57'.574 S 151° 12'.045 E

Temporary Notices

7. A Temporary notice is issued where the information will remain valid only for a limited period. A Temporary notice is indicated with a (T) adjacent to the notice number.

```
763(T)/2013 AUSTRALIA - QUEENSLAND - Karumba - Dredging operations

Date - Until 9 September 2013

Maritime Safety Queensland Notice 572(T)/2013 (AA686339)

The vessel Pacific Conquest is conducting dredging operations in Karumba Entrance Channel (17° 26'.1 S 140° 44'.2 E).

Mariners are advised to navigate with caution in the area.

Chart temporarily affected - Aus 6
```

Preliminary Notices

8. A Preliminary notice is indicated with a (P) adjacent to the notice number. They are issued where advance promulgation to mariners is needed e.g. Planned alteration to a light. A Permanent notice will be promulgated when the work is completed.

```
839(P)/2013 AUSTRALIA - VICTORIA - Port Phillip - South Channel - Light beacons to be established

Date - On or about 1 November 2013
Victorian Notice 109(T)/2013 (AA689155)

Light beacons will be established as follows:
Position Remarks
38° 18'.81 S 144° 55'.95 E No23
38° 17'.93 S 144° 55'.95 E No24
38° 17'.93 S 144° 55'.95 E No25
```

Blocks and Chart Notes

- 9. Blocks and Chart Notes are a replacement portion of a chart. They are produced where there is significant new information important to safe navigation in a relatively small area, or where the volume of changes would clutter the chart if amended by hand. Blocks and Notes are designed to be cut out and manually pasted onto the relevant chart. See examples on next page. Blocks may also be referred to by other nations as a "Patch".
- 10. Chart notes are published in three text colours:
 - magenta cautionary
 - green environment
 - black explanatory.

Chart Block Example

Notice

805* AUSTRALIA - WESTERN AUSTRALIA - Dampier Archipelago - Oil field northwards

Former Notice - 171(T)/2013 is cancelled

NOPSEMA (DHDB 2260060), Santos Ltd (AA685342)

Aus 327 [691/2013]

Insert accompanying block

19° 21'.0 S 116° 41'.0 E

Block for Aus 327 NTM 805/12

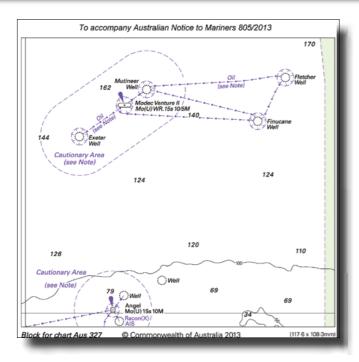


Chart Note Example

Notice

803* AUSTRALIA - NORTHERN TERRITORY - Cape Stewart - Historic wreck northwards
Department of Sustainability, Environment, Water, Population and Communities (AA687047, AA687048)

Aus 717 [345/2011]

Insert restricted

restricted area with radius 0.43M, centred on accompanying note

11° 41'.50 S 12° 18'.0 S 134° 36'.67 E 134° 45'.0 E

Block for Aus 717 NTM 803/12

To accompany Australian Notice to Mariners 803/2013

HISTORIC WRECK

The site of an historic wreck is protected from unauthorised interference. For details see Seafarers Handbook for Australian Waters AHP 20.

2.3.2 Section II - Hydrographic Reports

- 1. Hydrographic Reports conveying information useful to the mariner are always welcome at the AHS. Such information will be used to improve existing charts, Sailing Directions and other navigation products in both the Australia's Charting Area and worldwide. See Section1.6 page 6 for further details.
- 2. Section II acknowledges the receipt of Hydrographic Reports as shown in the following example:

HYDROGRAPHIC REPORTS			
Locality	Report	Ship/Authority	Observer
NSW- Botany Bay	Buoys	MV Diamond Princess	
WA- Montebello Islands	Buoys	MV Four Rainbow	

2.3.3 Section III - Navigational Warnings

- 1. A summary of navigational warnings are published in Section III every fortnight. The summary includes:
 - AUSCOAST Warnings the previous fortnight warnings still in force, received from AMSA
 - NAVAREA X Warnings warnings still in force
 - summary of mobile drilling rigs.
- 2. All warnings should be temporarily recorded on the affected paper charts using a 2B pencil and/or loaded onto an Electronic Chart Display and Information System (ECDIS) as a manual entry, to ensure that warnings are not missed.
- 3. A Navigational Warning log sheet is provided in Chapter 6 page 34.

AUSCOAST Warnings (Coastal Navigational Warnings)

4. These warnings are important navigational warnings prefixed AUSCOAST and numbered consecutively on an annual basis. They are broadcast for as long as the information is valid, or until it is made available by other means, such as NtM.

NAVAREA X Warnings (Long Range Navigational Warnings)

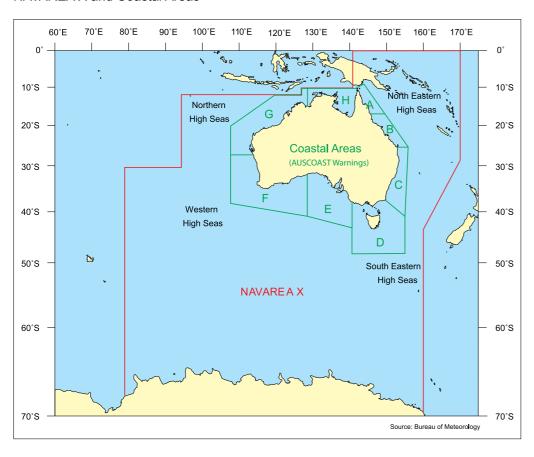
5. These warnings will only be issued in relation to navigational aids or dangers outside the Australia coastal areas. Australia is the coordinator for NAVAREA X. For more information visit Australian Maritime Safety Authority (AMSA) website:

Website:

www.amsa.gov.au/search-and-rescue/distress-and-safety-comms/msi/

42

NAVAREA X and Coastal Areas



2.3.4 Supplements

- 1. The following supplements linked to the NtM can be downloaded from the AHS website:
 - Supplement (i)Tracings
 - Supplement (ii) Cumulative List of Australian NtM
 - Supplement (iii) Cumulative List of Australian Temporary and Preliminary Notices (list by chart)
 - Supplement (iv) Temporary and Preliminary Notices (list by full notice)
 - Supplement (v) BA Supplement Amendments to Admiralty Publications.

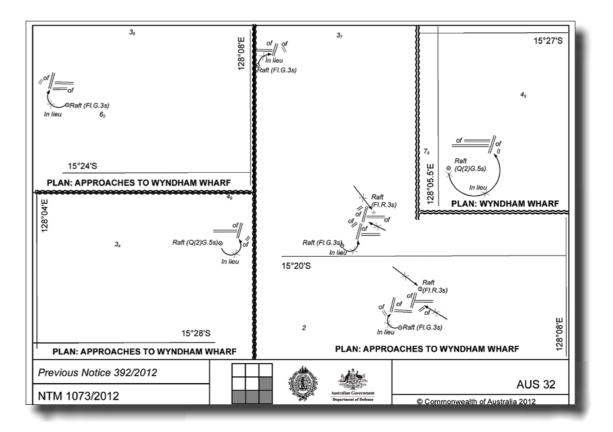
Website link: www.hydro.gov.au/n2m/notices.htm

2. To access these supplements via the website, select where shown below:



Tracings

3. NtM tracings are produced to assist the mariner to update their charts. They are diagrams that provide guidance on how to apply NtM updates. They are overlaid on the chart and the position of each feature can be pierced through to the chart with a pin to enable the feature to be drawn in position. A set of tracings are available for each published Australian NtM edition, similar to the example below:



Cumulative Lists of Australian Notices to Mariners

- 4. A <u>Cumulative List</u> is produced to assist mariners to maintain chart currency. The list has the current edition date and all the NtM updates that have affected each Australian Paper Nautical Chart in the last two years. The Cumulative List is:
 - published as a supplement to each fortnight NTM edition
 - on the AHS website go to the ACI > Paper Chart List, scroll to the chart in question then select view details.
- 5. Cumulative list supplement example below:

Chart Number	Current Edition	Notices to Mariners affecting the chart from Edition 17 dated 26 Aug 2011
Aus 4	Nov 2012	2013- 33-687
Aus 6	May 2000	2013-688
Aus 13	May 2002	2013 -088 2012 -189
Aus 14	Oct 1996	2012-103
Aus 15	Jun 1995	2009 -946
Aus 16	Aug 2001	2006- 261
7100 10	, ag 2001	200 201

Chart and Publication
Maintenance Handbook

Chapter Two

Temporary and Preliminary Notices in Force

- 6. A summary of Temporary and Preliminary notices in force are available via:
 - fortnightly NtM summary published every quarter (first edition every January, April, July and October)
 - Temporary and Preliminary Supplement on website (see example below).

TEMPORARY AND PRELIMINARY NOTICES In force on 11 January 2013

NEW SOUTH WALES

847(T)/2010 AUSTRALIA - NEW SOUTH WALES - Hastings River - Port Macquarie - Light discontinued Former Notice - 50(T)/2010 is cancelled NSW Maritime (AA483333)

The light (31° 25'.61 S 152° 54'.87 E) has been temporarily discontinued and will be replaced with a new sector light.

Chart temporarily affected - Aus 219 - Aus 219

British Admiralty Supplement

7. The British Admiralty Supplement contains amendments for the following Admiralty Publications:

Publication Number	Publication Title
NP83	List of Lights - Volume K
NP281(2)	Maritime Radio Station
NP282	Radio Aids to Navigation, Satellite Navigation Systems, Legal Time, Radio Time Signals and Electronic
	Position Fixing Systems
NP283(2)	Maritime Safety Information Services
NP285	Global Maritime Distress and Safety System (GMDSS)
NP286(4)	Pilot Services, Vessel Traffic Services and Port Operations
NP9	Antarctic Pilot
NP13	Australia Pilot Vol I
NP14	Australia Pilot Vol II
NP15	Australia Pilot Vol III
NP33	Philippine Islands Pilot
NP34	Indonesia Pilot II
NP35	Indonesia Pilot III
NP36	Indonesia Pilot I
NP39	South Indian Ocean
NP44	Malacca Strait and West Coast of Sumatera Pilot
NP51	New Zealand Pilot
NP60	Pacific Islands Pilot Vol I
NP61	Pacific Islands Pilot Vol II
NP62	Pacific Islands Pilot Vol III
NP100	The Mariners Handbook
NP136	Ocean Passages for the World

8. British Admiralty Supplements on the AHS website have been reproduced from the Weekly Admiralty Notices to Mariners.

2.4 Accessing Notices via the Australian Chart Index (Online)

1. The content of Australian Notices to Mariners is also available on-line via the Australian Chart Index. This directly links the current edition of each chart with a list of all notices affecting the chart. This avoids the need to search Cumulative Lists and NtM editions. It is particularly useful when a mariner's portfolio of charts is relatively small or only a few charts need updating ahead of a specific voyage. For details, see Section 3.2.4.

2.5 eNotices

- 1. <u>eNotices</u> is a free service which enables the mariner to receive individual Australian NtM by email. This service can be customised by individual users selecting specific charts and publications held. An email is automatically generated when a fortnightly NtM is published. The email will contain the following:
 - notices for the charts and publications tailored to the mariner's subscription
 - notification if there are no notices applicable to the mariner's holdings in the current NtM edition
 - notification of charts and publications published or withdrawn
 - · important announcements to chart and publication users.
- 2. eNotices do not include blocks or tracings. This allows eNotices email file sizes to remain small compared to the full fortnightly Australian NtM, and therefore is more easily downloaded at sea.
- 3. Subscription is available on the AHS website.

2.6 Admiralty Notices to Mariners

1. Admiralty Notice to Mariners (NM) can be downloaded from the UKHO website in PDF under the Maritime Safety Information tab or via the links below.

Notice to Mariners link:	www.ukho.gov.uk/ProductsandServices/MartimeSafety/Pages/NMPublic.aspx
Admiralty NM Database link:	www.nmwebsearch.com

2. The Admiralty NM Database allows users to search by chart number for NM text, blocks and notes.

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Chapter 3) PAPER NAUTICAL CHARTS

3.1 Introduction

Paper charts must be kept up to date at all times in accordance with the <u>International Convention for the Safety of Life at Sea (SOLAS)</u> Chapter V, and the National Standards for Commercial Vessels. See Chapter 1 for further information.

3.1.1 What is a New Chart?

1. The production of New Charts is an ongoing process. They most commonly reflect a significant change of limits, scale or datums, or occasionally an area not previously charted. They often supersede an existing paper chart. Their publication is promulgated in Australian Notices to Mariners (NtM), with the Notice including details of any chart affected or replaced. The date the chart was first published can be found in the centre of the lower margin of the chart.

3.1.2 What is a New Edition?

- 1. A New Edition of a chart is produced when there is new information which is too large for a block correction or NtM. The New Edition incorporates all NtM issued for the previous edition. The chart's edition date can be found adjacent to the bottom margin near the publishing date. See diagram at Section 3.2.2.
- 2. New Editions are promulgated by NtM and supersede previous editions of that chart. NtM issued after a New Edition are released should not be applied to the previous edition as they are applicable only to the New Edition's datum and embedded information.
- 3. There is usually a period of up to two weeks where paper copies of the New Edition are available and the previous edition has not been withdrawn. During this short overlap period (until the withdrawal notice is promulgated) both the New Edition and the previous edition are legal to use. Once the withdrawal notice is promulgated, the previous edition should be archived or destroyed.

3.2 Updating Paper Nautical Charts

3.2.1 Chart Print Date

1. All Australian paper nautical charts are printed from files updated in the fortnight following publication of each Notices to Mariners edition. The date of the print file is shown in the upper right corner of each chart. If the date is less than two weeks old, it is highly unlikely that any further Notices have yet been published for that particular chart. If the print date is less than two weeks old, at most, only reference to the latest edition of Notices to Mariners will be required. However, for charts older than two weeks, a check of the latest Notice applied will be required.

3.2.2 Are Charts Up to Date When Purchased?

- 1. The AHS print all Australian Paper Nautical Charts from up-to-date master print files on receipt of a customer order. However, there could be a delay between delivery to chart agents and purchasing. Do not assume charts are up to date on the purchase date.
- 2. If you have purchased your Australian Paper Nautical Charts from an authorised AHS 'Correcting Agent', your charts should be up to date for NtM at the time of purchase.

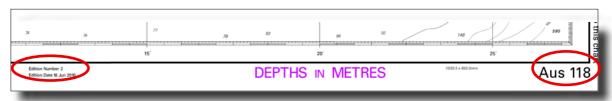
13

42

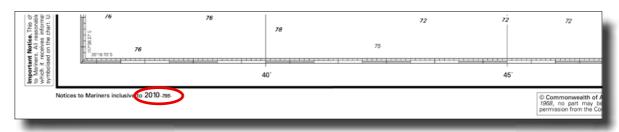
- 3. If you have purchased your Australian Paper Nautical Charts from an authorised AHS 'Non Correcting Agent' or a retail outlet of one of our authorised agents, it is unlikely that your charts will be up to date. You should update them before use.
- 4. See Section 1.5.3 page 6 for Distributor List website link.

3.2.3 Determining How Up to Date a Chart is

- 1. To determine the update status of a chart, conduct the following checks:
 - Identify the chart number on the chart. The chart number can be found on the top left or bottom right corner of your chart. In the example below the chart number is 'Aus 118'.
 - Identify the edition of the chart. The edition date can be located at the bottom of a chart. If a number
 of edition dates are listed, the edition of the chart is the most recent date listed. In the example below,
 the edition date is '18 Jun 2010'.



• Check the last NtM to be applied to the chart. The NtM that have been applied to the chart are listed on the chart's bottom left corner. NtM are numbered from '1' onwards each calendar year and are therefore unique and specific to a particular piece of safety critical information. The numbers written in the larger text represent the calendar year a NtM was issued. The numbers written in the smaller text are the Notice numbers. In the example below, one NtM has been applied to this copy of Aus 118 and the last NtM applied is NtM '795' of '2010'.

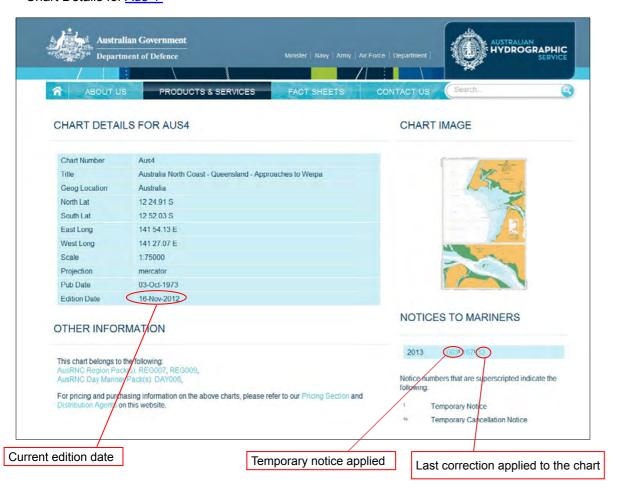


If the NtM numbers are written in black type (like in the example) then the NtM have been
incorporated into the chart base prior to printing. If the NtM numbers are written in magenta ink or
appear hand written, then the NtM have been applied to the chart by hand correction.



- Go to the AHS website and select the 'Standard ACI' then select 'Paper Chart List' and scroll down to find the chart that matches your chart number. In this example it is Aus 118.
- Click Aus 118 then click on 'view'. A similar page to the one on the next page will appear.
- Check that the chart is the latest edition (NtM listed are for the latest edition only).
- Check that the last NtM listed, (circled in diagram below, on the right hand side) matches with the
 last NtM applied to the chart. In the example above the last correction is 795. If the number does not
 match then the notices not listed on the chart have to be applied.
- Temporary and Preliminary Notices are identified with (T) and (P). The web page on the following page shows there was one Temporary Notice applied in 2008 764.

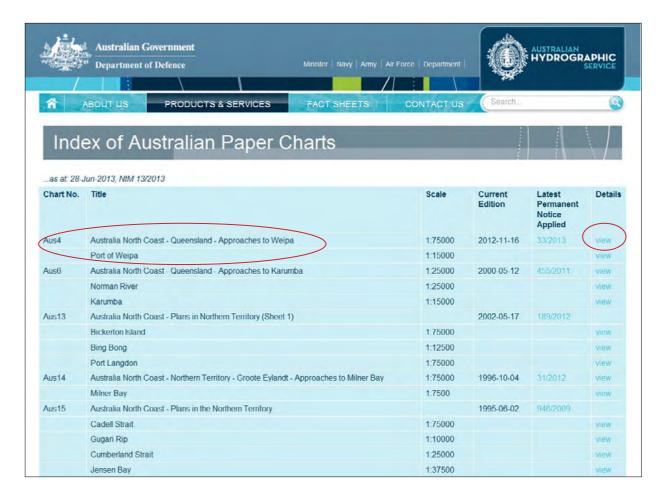
Chart Details for Aus 4



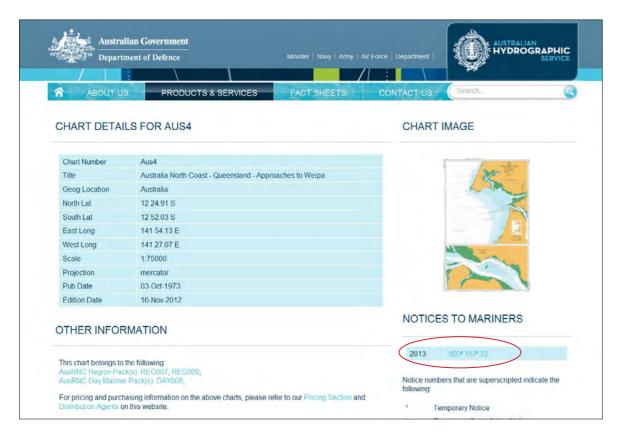
2. If a chart requires significant NtM updates, it may be easier to order a replacement chart. All Australian Paper Nautical Charts are printed to include all extant notices up to the previous fortnight.

3.2.4 Accessing Notices to Mariners via the Australian Chart Index

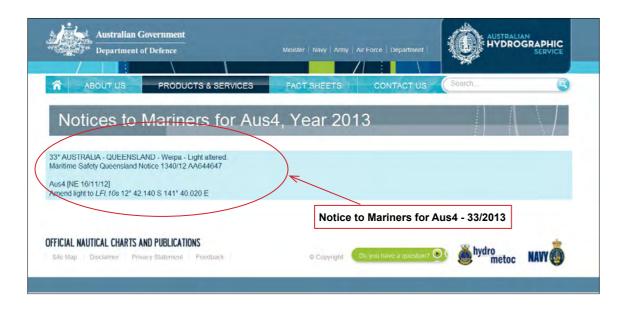
- 1. The content of Australian Notices to Mariners is also available on-line via the Australian Chart Index. This directly links the current edition of each chart with a list of all Notices affecting the chart, then takes a user direct to the content of each Notice affecting that chart.
- 2. To access updates via the ACI, select '<u>Australian Chart Index</u>', then select '<u>Paper Chart List</u>' and scroll down to the chart that matches the one of interest.



3. By selecting 'View' it is then possible to access chart details and a list of active links to every Notice affecting the current edition of the selected chart.



4. Selecting any one of these links then opens the relevant Notice, including Permanent, Temporary, Preliminary and Block corrections.



3.2.5 Equipment Required to Update Paper Charts

1. It is important to have the right tools when correcting charts and publications. The following stationery items are recommended and can be purchased at any good stationery stores:

• Technical pens (1) 1 x 0.18mm and 1 x 0.25mm (nib size)

Pencils (2) 2B and a hard pencil (7H) - a hard pencil will precisely plot a point

• Ink Colour (3) violet / magenta (not red)

• Eraser (4) soft

Adhesive to glue blocks and notes on paper charts

Parallel rule (5) for plotting updates on paper charts

Dividers (6) for accurate positioning

Hacksaw blade a tool for drawing the symbol for a cable (2.5 blade)

• Compass (7) there is a requirement to draw circles or sectors

• Straight edge (8) 1 metre in length - good tool for plotting a position on a paper chart

Templates (9) various sizes - to help create perfect shapes.



3.3 Measurement Conversion Table

Unit	Is Equal To
1 nautical mile	1852 metres
1 nautical mile	1 minute of latitude
1 knot	1 nautical mile per hour
1 cable	one tenth of a nautical mile or 608 feet (200 yards)
1 metre	approx 3.3 feet
1 fathom	1.8288 metres
1 fathom	six feet / 2 yards

3.4 Symbols Used on Paper Nautical Charts

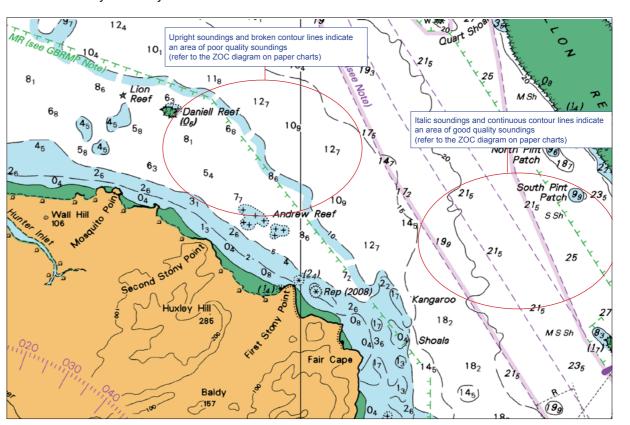
- 1. The standard symbols used on paper charts can be found in the following publication:
 - British Admiralty Publication NP5011 Symbols and Abbreviations used on Admiralty Charts.
- 2. The following symbology may still exist in Australian Paper Nautical Charts but has been removed from NP5011:

INT 1 Reference	Description	Symbol
D 17b	Helicopter Landing Site	$_{\oplus}$
J 21	Approximate Rock Reef	ማስማስማስማስማስማስማስ
J 21	Rock Symbol	報
J 22	Approximate Coral Reef	-1969196419641964196419641964196419641964196419641964
J 22	Areas Considered to be Coral Reef	
J 22	Areas of possible shoaling	
J 22	Coral Pinnacle	*
L 17	Moored Storage Tanker	•
М	Preferred Route	-<>-
M 28.2	Two-way Route direction arrow	<=÷>
U 3	Visitors Mooring	ø
N	Ship Reporting System	
	Virtual Aids to Navigation	V-AIS V-AIS V-AIS

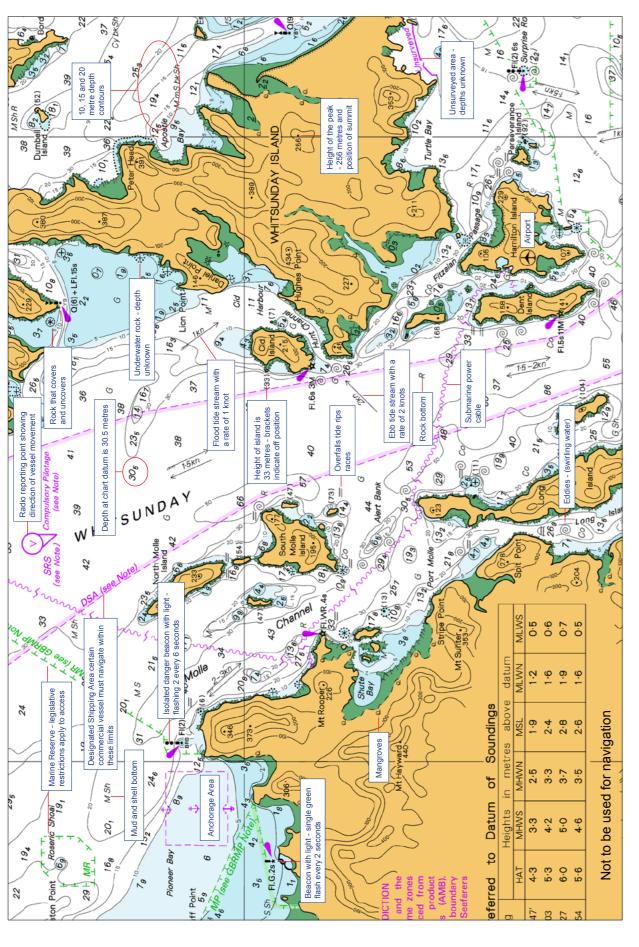
3. The following maritime boundaries have been adopted into NP5011. Their depiction on Australian Paper Nautical Charts is shown below:

NP 5011 Reference	Description	Depicted on Chart
N 22	Particularly Sensitive Sea Area	PSSA (see GBRMP Note)
N 22	Great Barrier Reef Marine Park High Restriction Areas	MR (see GBRMP Note)
N 22	Great Barrier Reef Marine Park	GBRMP (şee Note)
N 22	Environmentally Sensitive Sea Area	ESSA(see Note)
N	Designated Shipping Area	DSA (see Note)

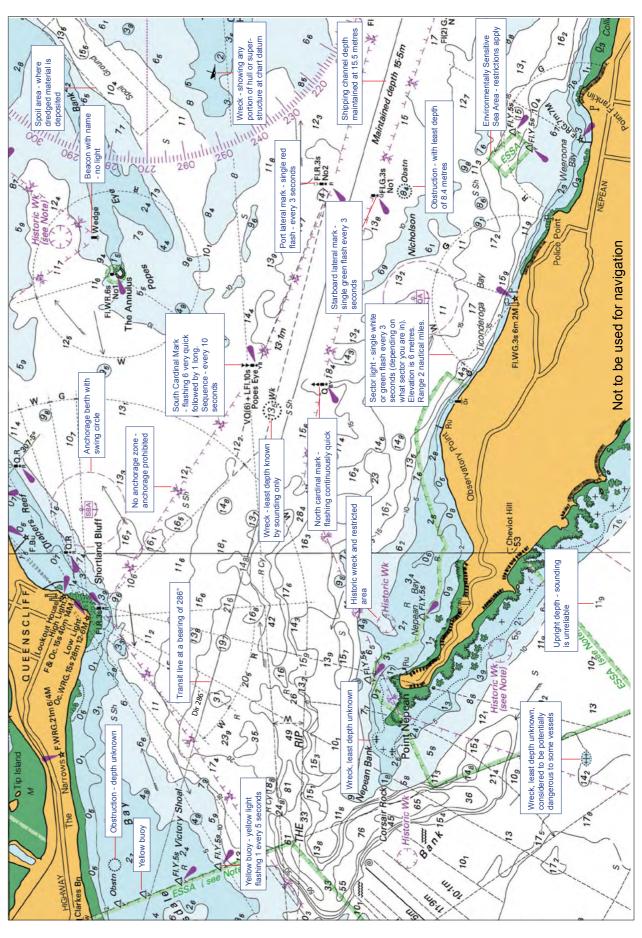
Common Survey Accuracy Indicators



Common Chart Symbols - Explanations



Common Chart Symbols - Explanations



3.5 Applying Corrections to Paper Nautical Charts

3.5.1 Tracings

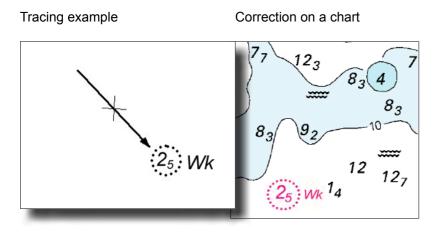
- 1. Tracings are to assist in the correction of charts. The tracing is a pictorial representation of the printed NtM. They are supplied with each edition of NtM. They are not to be used blindly to correct charts; the notice should always be consulted first.
- 2. It is recommended that tracings be printed on premium grade A4 tracing paper 110 115gsm. If tracing paper is unavailable, white paper less than or equal to 70gsm is sufficient.

3.5.2 Terms Used in Notices to Mariners and Symbols on Tracings

1. There are five main commands in Australian NtM. These are:

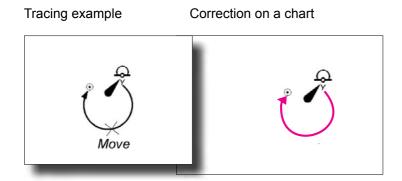
Insert

- Insert is used when new data is added to a chart. Features are to be inserted on the position given but if this is not practicable, a ⊙ symbol (fixed point) is to be used and the original symbol can then be inserted elsewhere with an arrow indicating its true position. This procedure can also be used for minor movement of symbols but the arrow in both cases should not exceed a maximum length of 3 to 5cm.
- 3. Tracing Symbol: The Insert symbol on a tracing is an arrow with a cross. The arrow is pointing to the position of the feature. When correcting the chart, the arrow and cross are not transferred onto the chart.



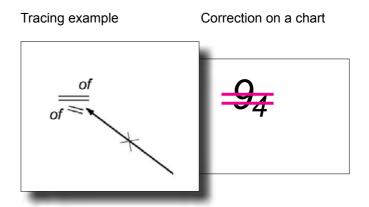
Mov

- 4. Move is used when a position has changed but not the features characteristic.
- 5. Tracing Symbol: The move symbol on a tracing is an insert arrow with the word 'move' around the outside. The cross on the arrow and the word 'move' is not placed on the chart. See example on next page.



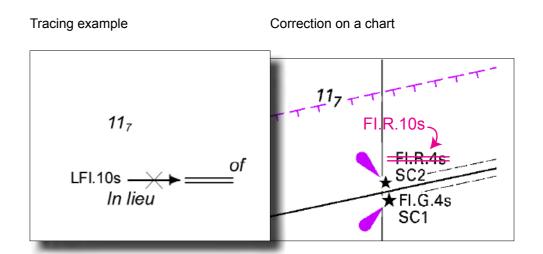
Delete

- 6. Delete is used when a feature is to be removed from the chart.
- 7. Tracing Symbol: The delete command is indicated by an 'Of' symbol. A deletion is also marked as a double strike through over the feature. The delete symbol is not transferred to the chart.



Amend

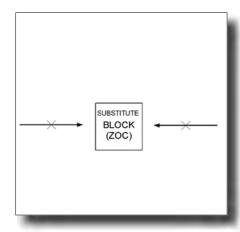
- 8. Amend is used when a feature needs to be amended e.g. a characteristic of a navigation light has changed, but the position of the light remains the same.
- 9. Tracing Symbol: The word "in lieu" is used along with an insert arrow and in most cases a deletion will accompany the amend command. The cross on the arrow and the words 'in lieu' are not placed on the chart.



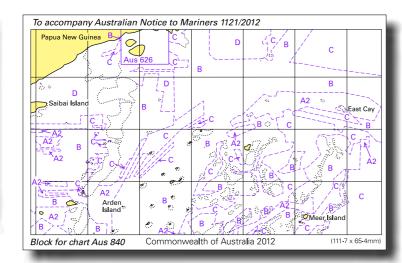
Substitute

- 10. Substitute is used when a feature replaces an existing feature and position hasn't been altered.
- 11. Tracing Symbol: The word "substitute" is written inside a box with insert arrows indicating the position on the chart. In the example below, simply align the position of the block on the chart and paste directly onto the chart.

Tracing example



Correction on a chart



3.5.3 Temporary and Preliminary Notices

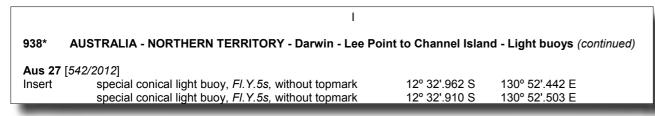
- 1. Temporary and Preliminary Notices are to be plotted using a 2B pencil in the general area affected with a cross to indicate the position of the object. If an area is given, the boundary may be plotted using a dashed line. A box containing the notice number and brief details of the notice is to be plotted in a convenient place clear of any other information and this is connected to the position or area by an arrow.
- 2. When a Temporary or Preliminary correction is completed the number of the correction is to be inserted at the top left hand corner of the chart indicating its completion on the chart.
- 3. It is recommended that a Temporary and Preliminary Log be maintained. See Chapter 6 page <u>34</u> for details.
- 4. A list of Temporary and Preliminary notices in force on the 1st of January of each year are reproduced in the Annual NtM. Details of Temporary and Preliminary Notices applied to the current edition of each chart can also be identified and obtained via the <u>Australian Chart Index</u> (ACI) and the <u>Paper Chart List</u> on the AHS website.

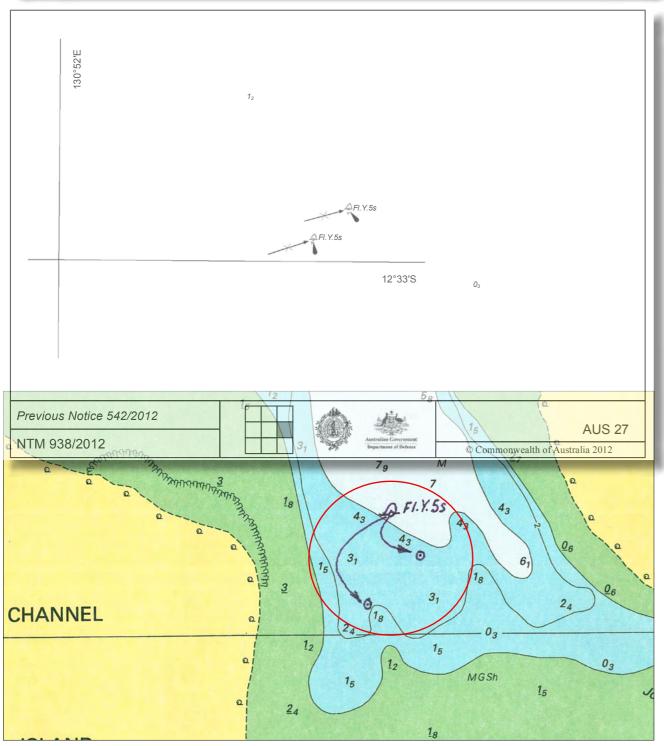
3.5.4 Important Points to Remember when Applying a Correction to a Paper Chart

- · check Notices to Mariners every fortnight
- all notices are considered critical for safe navigation, corrections must be completed as soon as possible to a high standard
- if several charts are affected by a NtM, the largest scale charts should be corrected first
- positions must be plotted precisely and corrections must be written clearly and away from other features on a chart
- <u>do not</u> use red pen to correct charts, red light could be used on the bridge of a ship at night, rendering any red text or linework invisible
- do not solely rely on tracings to update charts; tracings should be used in conjunction with NtM
- always remove the black border from the block before pasting it onto the chart
- if glue is used it should be applied to the chart not to the block; this reduces the possibility of distortion on the block
- charts that are not maintained are to be clearly marked "NOT TO BE USED FOR NAVIGATION"
- always hold the current edition archive or destroy old editions to avoid confusion
- the NtM number is to be inserted at the bottom left hand corner on completion of correction first correction for the year, the year is to be recorded before the number
- it is recommended that a chart correction log is maintained to record the corrections applied to charts
- always check your corrections
- check Temporary and Preliminary Notices in Force and Cumulative Lists on a regular basis
- · complete an audit of corrections every six months
- when printing NtM accompanying blocks / pages always select 'no page scaling', see diagram on page 31 Section 5.4.3.

3.6 Chart Correction Examples

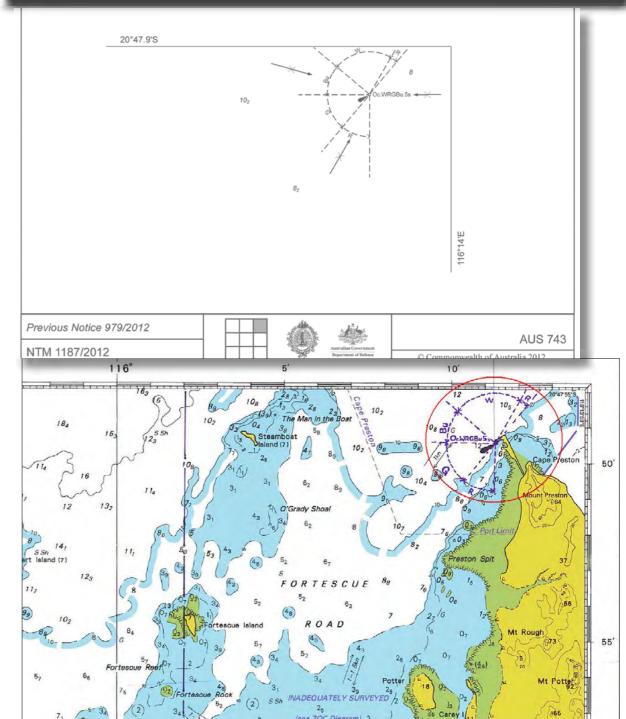
3.6.1 Inserting a Navigation Aid





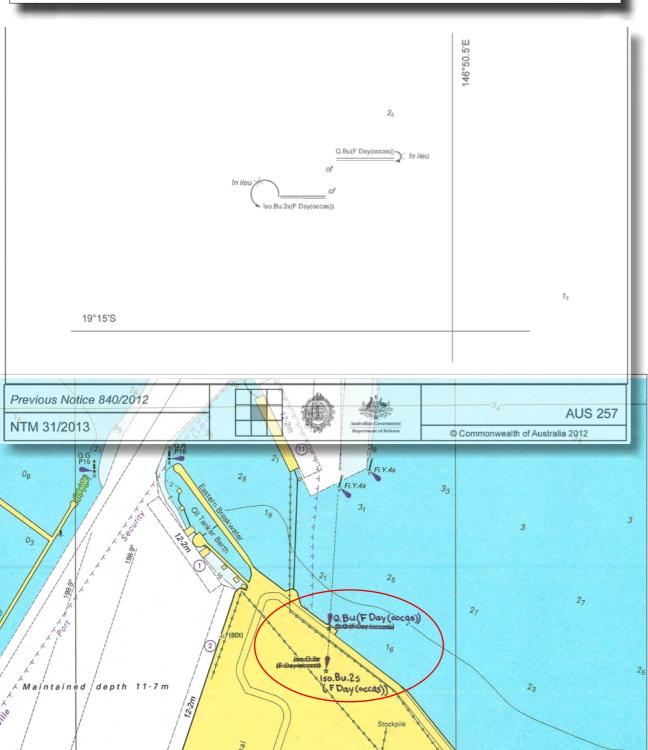
3.6.2 Inserting Light Sectors





3.6.3 Amend a Light Characteristic

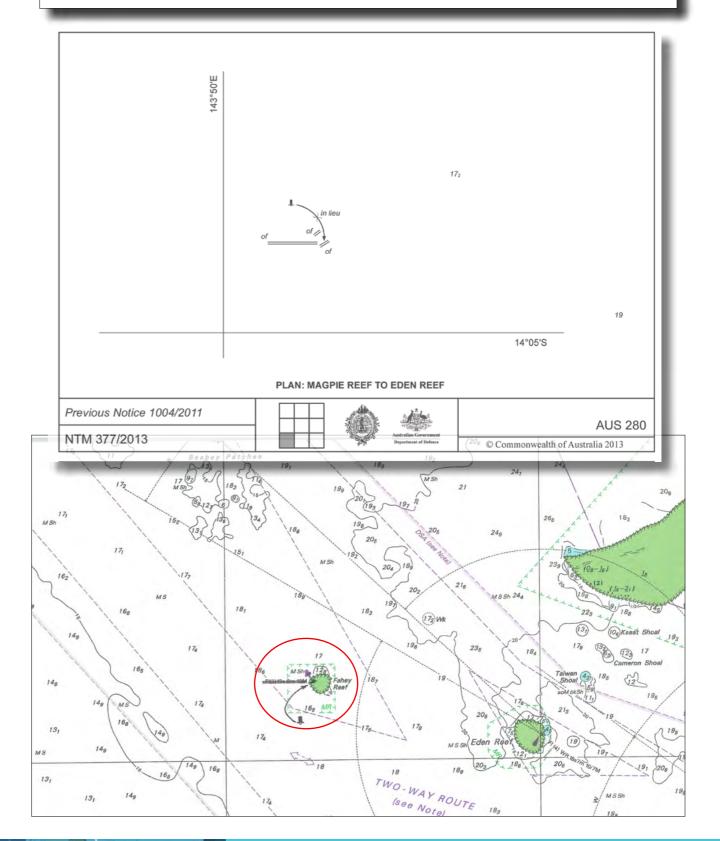




3.6.4 Substitutions

377* AUSTRALIA - QUEENSLAND - Fahey Reef - Light; beacon
Australian Maritime Safety Authority ATH 4/2013 (AA664615), Australian Maritime Safety Authority Auscoast Warning 98/2013 (AA664321)

Aus 280 (plan, Magpie Reef to Eden Reef) [1004/2011]
Substitute beacon for light 14° 03'.8 S 143° 51'.4 E



Chapter 4) ELECTRONIC CHARTS AND DISPLAY SYSTEMS

4.1 Introduction

- 1. More than simply a chart image displayed on a computer, an official electronic chart displayed on the appropriate equipment is a real time navigation aid. It enables viewing systems connected to a satellite positioning fixing system (e.g. GPS) to continuously display a vessel's real time position in relation to land, charted objects, aids to navigation and unseen hazards.
- 2. Official electronic charts are those issued by, or on the authority of, a Government, authorised Hydrographic Office or other relevant government institution. In Australia the relevant hydrographic authority is the Australian Hydrographic Service (AHS).
- 3. There are two types of official electronic charts available:
 - vector charts Electronic Navigational Charts (ENC) (see 4.2 page 34)
 - raster charts Raster Navigational Charts (RNC) (see 4.4 page 26)
- 4. The AHS publishes official electronic charts covering waters of Australian, Papua New Guinean and Australian Antarctic Territory waters under the following banners:

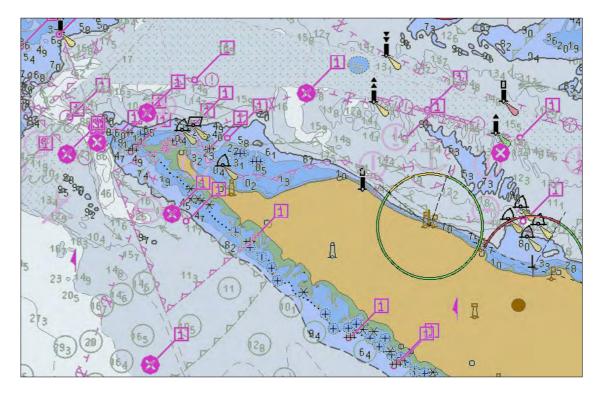
Product	Service	Availability
Au ENC	AusENC	Australian Chart Distribution Agents (see AHS website)
Au ENC	International Centre for ENC via various value added Re-sellers	(see IC-ENC website www.ic-enc.org/page_vars. asp) Includes: Admiralty Vector Chart Services Chart Co Chartworld Datena Jeppessen Marine Maris Navtor Primar

- 5. An official electronic chart can be loaded onto two classes of Chart Display and Information Systems:
 - Electronic Chart Display and Information System (ECDIS) meets International Maritime Organization (IMO) / the International Convention for the Safety of Life at Sea (SOLAS) and National Standard for Commercial Vessels (NSCV) requirements if used with up to date official electronic charts (see Chapter 1).
 - Electronic Charting System (ECS) does not meet IMO / SOLAS requirements but may meet NSCV requirements depending on vessel size and area of operation, if used with up to date official electronic charts.
- 6. For electronic chart and system carriage requirements see 1.4 page 4

4.2 Electronic Navigational Charts (ENC)

- 1. An Electronic Navigational Chart (ENC) is an official vector electronic chart organised in cells, produced in International Hydrographic Organization (IHO) S-57 Edition 3.1 format, and protected using the IHO S-63 data protection scheme. It is authorised for navigational use in International Maritime Organization (IMO) compliant ECDIS and can also be used in a compatible ECS.
- 2. The chart information in an ENC is not held as a single image or "picture" of a chart, but as individual items (objects) in a database. Each chart feature and its associated information is recorded separately in the database. This allows all the chart data to be analysed and reassessed continuously by ECDIS in relation to a vessel's current (and intended position), draft and clearance height.
- 3. ENC have the following attributes and functions when displayed in EDCIS:
 - warnings and alarms are raised by the ECDIS when dangers or hazards will affect a ship
 - · layers can be turned on or off
 - · zooming without distortion
 - seamless (viewing from one ENC cell to the next) without interruption
 - content is based on official paper charts (the same survey data source)
 - the ENC may have higher levels of content than the corresponding paper chart
 - positions on ENC are referred to the World Geodetic System 1984 Datum (WGS84) which are directly compatible with Global Navigation Satellite System positions (GNSS) e.g. GPS
 - regularly updated (See section 4.3.3 page <u>25</u>)
 - each feature is given a SCAMIN value the value of an object determines the display scale below
 which the object is no longer visible and reduces clutter displayed to the ECDIS user. The scale at
 which you view an ENC will determine what objects/features will appear on the screen.

Example of an ENC



4.2.1 AusENC Coverage

1. The AHS provides ENC coverage for all areas covered by paper charts. See Standard Australian Chart Index (ACI) and select "ENC Cell List", or alternatively select "ENC Cells" from the Advanced ACI on the AHS website.

Website link for Chart Index:	www.hydro.gov.au/prodserv/paper/standard-aci.htm
Website link for ENC list:	www.hydro.gov.au/webapps/jsp/charts/enclist.jsp

ENC Coverage - Advanced Australian Chart Index

4.2.2 Australian ENC Naming Convention

1. All Australian ENC adhere to an eight character file naming convention controlled by the International Hydrographic Organization (IHO). In this structure the first two characters denote the producer nation, the next number denotes the navigation purpose. The remaining five form a unique identifier for Australia ENC which is based primary on geographic positions.

Producing Nation Code (always 2 letters)	Navigation Purpose Code (single number range 1 to 5)	Unique File Number (5 characters)
AU	3	30120
These two letters indicate The official Producing Nations Code. All AusENC start AU (an abbreviation for Australia).	ENC are compiled for a variety of navigational purposes, each governing the range of detail included. Within these scale bands it is also possible to zoom in and out for more or less detail (see table below).	This part of the file name is at the discretion of each ENC producing nation and identifies the geographic area covered. AusENC are either: based on square grids of latitude and longitude Navigation Purpose Codes 1 to 3 and most 4s, or based on one or more Australian paper charts (Aus charts) - Navigation Purpose Code 5 and some code 4s (see explanation below).

Navigation Purpose Code

2. Australian Navigation Purpose Codes are:

Navigation Purpose Code	Usage
1	Overview - 30° x 30° - ocean coverage for international passage planning
2	General - 10° x 10° - sea area coverage for offshore navigation
3	Coastal - 1° x 1° - continental shelf coverage for coastal navigation
4	Approach - 1° x 1° - near shore and port approach coverage for inshore navigation (plus a few chart-based ENC in the Coral Sea)
5	Harbour - for navigation from the pilot boarding ground to the berth, and in bays and inlets

Unique File Number - Based on Square Grids of Latitude and Longitude

3. Australian Navigation Purpose 1 - 4 ENC are referred to as cell based ENC.

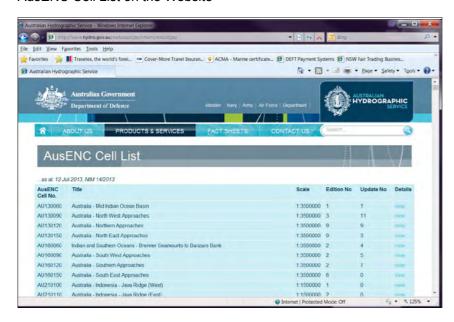
	Producing Nation Code		Navigation Purpose Code	Unique Fi	le Number
	(always 2 letters)		(number in range 1 to 5)	Latitude	Longitude
	AU		3	30	120
_			7		7
The Navigation Purpose Code indicates both the intended purpose and the size of the ENC (as shown in the table above).		ze of	The unique file number consists of 5 characters, the first two the latitude value and the last 3 are the longitude value and together represent the south-west corner of the ENC. Because Australian and Papua New Guinea waters are located south of the equator and east of Greenwich, all latitudes are southern latitudes, and all longitudes are eastern longitudes. ENC with different Navigation Purpose Codes can overlap but Australian Navigation Purpose 3 and 4 cells don't overlap each other. ENC with the same Navigation Purpose Codes cannot overlap.		
	\ \ 1		lian navigation purpose code '1' (3 h coverage north and east from 30	•	
	\ 4		lian navigation purpose code '2' (1) h coverage north and east from 30	•	
	AU330120 An	Austra	lian navigation purpose code '3' (1'	x 1°) ENC whose south wes	st corner is 30 S and 120 E,
	wit	h cover	rage north and east from 30 S to 29	9 S and from 120 E to 121 E	

Unique File Number - Based on Paper Chart Coverage

- 4. When the ENC is based on a paper chart the unique five character file name is based on paper chart numbers, not latitude and longitude. The number can be linked to a single paper chart, multiple paper charts or the large scale plan for which it provides equivalent coverage.
- 5. The letter P is used to denote that the ENC is based on a single paper chart or plan from that chart.
- 6. ENC numbered in the form e.g. 194P0, indicates the ENC contains coverage equivalent to the main chart on Aus194. If 'P' is followed by a number in the range 1 to 9, it is used to denote that the ENC is based on a plan from the named chart. ENC numbered in the form e.g. 256P2, indicate the ENC contains coverage of the second plan depicted on the paper chart Aus256.
- 7. 'X' is used to indicate a range of paper charts.
- 8. ENC of equivalent coverage to several charts are numbered in the form e.g. 262X4, indicating the ENC contains coverage equivalent to all charts in the range Aus262 to Aus264.
- 9. More examples:

ENC File Number	Explanation
AU5194P0	An ENC based on paper chart Aus194
AU5198X9	An ENC based on a range of paper charts: Aus198 and Aus199
AU5262X4	An ENC based on a range of paper charts: Aus262, Aus263 and Aus264
AU5256P1	An ENC based on the first plan depicted on paper chart Aus256
AU5256P2	An ENC based on the second plan depicted on paper chart Aus256
AU4611P2	An ENC based on the second plan depicted on paper chart Aus611 in the Coral Sea

AusENC Cell List on the Website

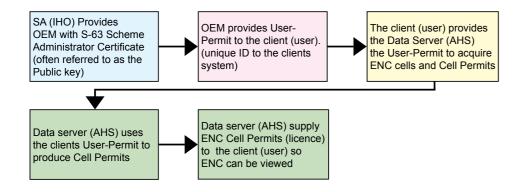


4.2.3 Understanding IHO S-63 Standard (Permits and Certificates)

1. The majority of ENC publishers encrypt their ENC using the International Hydrographic Organization (IHO) S-63 data protection standard. All ENC covering Australian and Papua New Guinean (PNG) waters published by the Australian Hydrographic Service (AHS), are protected using this standard. This includes AusENC and all other ENC services supplying official Australian ENC.

S-63 Data protection Standard Terms	Description
Scheme Administrator (SA)	Responsible for maintaining and coordinating the S-63 Protection Scheme (e.g. IHO)
Original Equipment Manufacturers (OEM)	Build the navigation software / hardware in accordance with the S-63 Protection
	Scheme.
Data Server	Provide the ENC data to the clients (e.g. AHS)
User Permit	Is a permit created by OEM and supplied to the client as part of their system so that
	they can obtain the necessary access to encrypt ENCs from Data servers
Client	The end user e.g. mariner
Cell Permit	A Cell Permit unlocks the ENC data. Issued by the AHS to the client

Certificate / Permits Process



4.3 The AusENC Service

4.3.1 Purchasing AusENC

- 1. AusENC are available through the relevant AHS Chart Distribution Agents.
- 2. Australian port authorities, maritime safety agencies and marine pilots may request AusENC that cover port limits or areas of operation, directly from the AHS. For further information contact the AHS via:

email:	hydro.licensing@defence.gov.au
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3. Access to ENC cells is controlled by permits. Permits are purchased for a set period, usually up to 12 months, but periods as short as three months are also available. In all cases mariners must renew their permits prior to expiry date if they wish to continue the service.

Service Packs

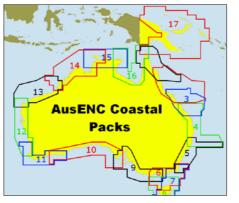
- 4. AusENC is sold in a range of packs at affordable prices with coverage tailored to Australian domestic operations. These packs are:
 - Port Packs provide port/harbour coverage including the approach cell(s). There are over 100 packs covering Australia and Papua New Guinea (12 months subscription)
 - Coastal Packs provide full scale coastal coverage between major ports. There are 16 packs covering Australia and one covering Papua New Guinea (12 months subscription)
 - Voyager Packs four packs providing extensive ocean coverage of Australia and Papua New Guinea (12, 9, 6, and 3 months subscription)
 - Australia Pack provides full coverage of Australian waters and includes over 600 ENC cells (12, 9, 6, and 3 months subscription).

Website: www.hydro.gov.au/prodserv/digital/ausENC/pack-index.htm

5. The AHS also allows ENC coverage of Australian and Papua New Guinea waters to be available in services offered by the IC-ENC distribution network. Vessels which require ENC coverage which extends outside Australian or Papua New Guinea waters should approach the International Centre for ENCs (IC-ENC) distribution network to ensure seamless coverage for their voyage.

Website: <u>www.ic-enc.org</u>

AusENC Packs Available





4.3.2 Installing an AusENC Service

- 1. A subscription enables the mariner to install cell permits on up to five workstations (on the one vessel or ashore). This includes:
 - · multiple workstations (networking) using one S-63 user permit
 - · Manufacturers issuing separate S-63 user permits for each workstation
- 2. Note: a shipping company wishing to use ENC on five vessels will require (at least) five ENC subscriptions and therefore at least five S-63 user permits.
- 3. IHO S-63 compliant navigation systems should issue warnings prior to ENC cell permit expiry to provide sufficient lead time for you to purchase new subscriptions. It is important to renew your subscription before it expires to guarantee continued access to your ENC data. Once the permits have expired, it will not be possible to load updates.
- 4. The items needed to install an AusENC service are:
 - AusENC 'Base' data CD (issued on purchase, then six monthly January and July)
 - AusENC 'Update' data CD (issued on purchase, then every monthly but not issued in January and July)
 - AusENC 'cell permits' (AHS will send the cell permits via email within two working days after purchase)
- 5. Prior to installing the following procedure must be followed:

Step 1 - Check the S-63 Scheme Administrator is installed

- 6. To use AusENC your navigation system must have the 'S-63 Scheme Administrator Certificate' (IHO.crt) installed (See 4.2.3 understanding Permits and Certificates page 24).
- 7. Consult your navigation system manual when installing the 'S-63 Scheme Administrator Certificate'.
- 8. The 'S-63 Scheme Administrator Certificate' can be obtained:
 - from the manufacturer (supply the certificate with their software or provide a web-site link to the certificate in their system documentation)
 - from the AusENC base and update CD under the directory called 'EXTRAS'
 - www.iho.int/iho_pubs/standard/S-63/S-63_SA_Certificate.htm.

Step 2 - Perform data cleansing.

Note: You <u>DO NOT</u> have to perform this if you are loading an ENC service on your navigation system for the first time.

a) Renewing a AusENC service

10. If significant time e.g. six months has elapsed between the expiry of your old AusENC service and the start of the new ENC service, we recommend that you remove all previous data and corresponding permits from your navigation system prior to installing the new AusENC service.

b) If Australian (AU) cells are installed from another ENC service

- Users, who have previously subscribed to a different ENC service for Australian and Papua New Guinean waters and have now decided to switch to the AusENC service, should remove the unwanted (old) ENC permits and data from their ECDIS system before installing the AusENC service. Consult the relevant ECDIS Operator's Manual to identify how to purge the system.
- Note: If the system is not purged, there may be difficulties loading because the cell names are the same regardless of the provider i.e. the system could display the ENC data that was from the old provider and you run the risk of navigating with out of date ENC.

- 13. To help identify which cells are duplicated you need to:
 - make a backup copy of PERMIT.TXT (emailed by the AHS)
 - Open the back up file in word pad so you can sort out which ones are duplicated (if the original permit.
 txt is altered it could cause problems)
 - Remove the duplicated cells and permits from your system (consult other services manual)
 - Once the unwanted cells and permits are removed, you are ready to load AusENC.
- 14. The set of alphanumeric characters listed in the PERMIT.TXT is explained in the following table:

File Name	Expiry Date	Rest of permit
AU130120	20130331	E6B58407ABB63A85E6855DA3C129732C13E18A4DA7AD057D,0,9,AU

Step 3 - Installing

15. The procedure for loading ENC services vary from system to system. For installation instructions consult your navigation system manual.

4.3.3 Updating AusENC and Subscription Renewals

- 1. AusENC service includes a full update service containing Permanent, Temporary and Preliminary Notices aligned with fortnightly Australian NtM Editions. By loading each published update (and any corresponding cell permits) onto your navigation system you can sail with confidence knowing that you're AusENC are as up to date as possible for safety critical information.
- 2. When you purchase a subscription to any AusENC pack you will automatically receive a free, fortnightly, web-based update service for the duration of your subscription. A CD update service is also available for a fee (to cover manufacturing and postage).
- 3. Update data is released fortnightly following each Australian NtM Edition, with one exception: when base data is released (see 4.3.2 page 25).

Update Services

- 4. There are two AusENC update services:
 - Standard service free, web-based service automatically provided with each AusENC pack subscription for its duration
 - Premium service CD based service which can be purchased for the duration of your subscription.

File download options

- 5. You can choose to download update data from the AHS website either as incremental updates or a cumulative update. Each update that is downloaded must be burnt to a separate CD.
- 6. Incremental updates correspond to each NtM release and therefore have small file sizes. These are zipped files and are useful to download if you are only missing a few updates. Note however that you will need to burn a separate CD for each incremental update.
- 7. Cumulative update contains all updates issued since the latest base data release. This could be useful if you have not updated your ENC for some time. You can choose to download the cumulative update either as a zipped file or as an ISO disc image.

Website link:	www.hvdro.gov.au/software/products/products.isp

AusENC Download Page on Website



Points to remember:

- Ensure you have the latest Base and Update CD (or electronic equivalent).
- Follow the manufacturer instructions precisely.
- Ensure that all your ENC cell permits are loaded.
- When data is loaded, check against the published NtM to ensure that the correct NtM have been applied.
- Make sure all layers are displayed on the ECDIS when checking updates.
- Updates are also used to cancel withdrawn cells if you retain the withdrawn cell the system will generate a warning if the withdrawn cell is used.
- Update data only corresponds to a particular edition of Base data. You must load updates that relate to the correct Base data.
- Cell permits for any new cells or new editions of cells contained within your AusENC packs will be sent
 to you via email for the duration of your subscription. This should occur on the first working day after
 each Australian NtM edition is published.
- AusENC cell permits are specific to a particular fortnightly update. It is important to not load new
 permits onto your navigation system until you have received or downloaded the corresponding ENC
 update data. Failure to follow this advice may remove access to previously installed ENC cells.
- Retain a copy of your latest Base CD. Previous editions of Base data should be destroyed.
- Retain a copy of your latest cumulative update CD which corresponds to your latest Base CD.

4.3.4 How to Check That all Updates Have Been Applied to an ENC

- 1. Updates to ENC are sequential. The sequence is unique to each ENC. During the updating process, an ECDIS always checks that all updates in the sequence have been applied. If an update is missing then the ECDIS will indicate this. It is not possible to load later updates until earlier updates have been applied to that particular edition of an ENC.
- 2. An ECDIS maintains an internal list of updates that have been applied and the date of application. The update process allows for ENC cell update history to be manually interrogated. An update list of ENC cells loaded can be checked on screen and / or printed out. Users should refer to the system manual.
- 3. Should there be any issues with the update procedure the software manufacturer should be consulted, however if there are any problems regarding the AusENC data, then advice should be sought from the AHS via email.

Technical Support email: hydro.techsupport@defence.gov.au
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4.4 Raster Navigational Charts (AusRNC)

- 1. AusRNC are digital raster copies of official paper charts. A raster chart shows exactly the same information as the paper chart. These charts are not intelligent; the chart features can not be changed or interrogated. Zooming in causes pixelation.
- 2. AusRNC has been superseded by vector charts (AusENC) and will be withdrawn from service (and no longer supported) by June 2014. Selected charts remain available via the <u>UK Hydrographic Office</u>.

4.5 Chart Display and Information Systems

- 1. There are two major categories of Chart Display and Information Systems. These are:
 - SOLAS compliant Electronic Chart Display and Information System (ECDIS)
 - non SOLAS compliant Electronic Chart System (ECS) or Chart Plotter.

4.5.1 Electronic Chart Display and Information System (ECDIS)

- 1. An ECDIS is far more than a simple display for images of a chart on a computer screen. It is a combination of systems, data and sensors that will enhance maritime safety and reduce the onboard chart maintenance.
- 2. An ECDIS comprises type-approved hardware and software, using authorised chart data. It provides a powerful decision making tool on the bridge of a ship which combines satellite position fixing and a sophisticated electronic database containing chart and other navigation information.
- 3. Most ECDIS convert each ENC cell from S-57 format into an internal machine language format called System ENC or SENC which is optimised for chart image creating routines. Each ECDIS software manufacturer has its own SENC format. Consequently the SENC format may differ between ECDIS manufacturers.
- 4. Features of an ECDIS include:
 - ECDIS will respond to the safety depth contour based on a vessel's actual draft (ENC only)
 - dangers or hazards can be identified automatically and warnings and alarms raised (ENC only)
 - the level of chart detail can be adjusted according to the circumstances (ENC only)
 - alternative colour schemes can be selected for use by day or by night
 - provision of alerts and prompts for planned course alterations

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- · automatic scrolling of chart area and automatic loading of necessary charts
- chart updates can be viewed by examining any location on a chart that has been updated.

4.5.2 Electronic Chart Systems (ECS)

- 1. All chart display systems, other than ECDIS, are known simply as ECS (Electronic Chart Systems). ECS provide automatic plotting of a vessel's position on an electronic chart. ECS equipment range from a hand held GPS to a more sophisticated viewing system that provide many of the functions found in ECDIS such as route planning, route monitoring and the raising of alarms and warnings.
- 2. The charts used in ECS come in a variety of forms. Some ECS use RNC while others rely on commercially produced charts ranging from very simple line drawings to images that closely resemble paper charts or ENC.
- 3. There are no agreed standards for ECS or the versions of the charts that they use. Because of this, ECS are NOT recognised as an alternative to paper charts for SOLAS class vessels (SOLAS Chapter V). However, ECS may meet carriage requirements for other commercial vessels under the National Standard for Commercial Vessels.

Components of an ECDIS

1. CHARTS THAT CONFORM TO IHO DATA STANDARDS S-57 - IHO Special Publication No 57 - Transfer Standard for Digital Hydrographic Data S-63 - IHO Special Publication No 63 - Data Protection Scheme

2. SOFTWARE THAT CONFORMS TO IHO DISPLAY STANDARDS

S-52 - IHO's Special Publication No 52
IHO Colour and Symbol Specification

Note:

An ECDIS becomes an ECS if at least one of the three components are not as specified

3. HARDWARE THAT CONFORMS
TO IHO PERFORMANCE STANDARDS
International Standard - IEC 61174

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4.6 Training

- 1. The International Maritime Organization (IMO) Committee on Standards for Training, Certification and Watchkeepers (STCW) approved a standardised IMO "Model Training Course on the Operational Use of ECDIS" (Model Course 1.27). The primary objective of the Model Course is to ensure proper use and operation of ECDIS in terms of a thorough understanding and appreciation of its capabilities and limitations.
- 2. For more information on ECDIS training contact the Australian Maritime College:

Telephone (Aust only):	+61 (03) 6226 2999
	1300 363 864
International:	+61 (03) 6324 3775
email:	amcinfo@amc.edu.au
Website:	www.amc.edu.au

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Chapter 5) NAUTICAL PUBLICATIONS

5.1 Introduction

- Hydrographic services under the International Convention for the Safety of Life at Sea (SOLAS) Chapter V
 have an obligation to provide adequate up to date nautical publications for the purpose of safe navigation.
 Corrections to nautical publications are promulgated in Notices to Mariners (NtM).
- 2. New editions of nautical publications are also promulgated in NtM. The old edition and any subsequent corrections to the new edition should be held until the replacement volume is received and corrected.

5.2 Carriage Requirements

Mariners are to refer to <u>SOLAS Chapter V</u> - Regulation 27 and <u>Australian Maritime Safety Authority (AMSA)</u>
<u>Marine Order 21.</u> Marine Order 21 paragraph 26 states:

"In accordance with Regulation 27 of Chapter V of SOLAS, nautical charts and nautical publications, such as sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage, must be adequate and up to date. Electronic versions of nautical publications, such as the above can be carried as an alternative to hard copy nautical publications, however, such electronic nautical publications must be adequate for the intended voyage and up to date.

Note: Electronic versions of nautical publications should be:

- (a) officially issued by an administration, authorised hydrographic office, or other relevant approved organization; and
- (b) accessible using a dedicated computer located on the bridge which is available at all times to the Officer of the Watch, and which is connected to the ship's main and emergency power supplies; and
- (c) available either:
 - (i) on at least one other back up computer that can be made available to the Officer of the Watch within 5 minutes; or
 - (ii) as up to date paper printouts of relevant nautical publications.

In addition, all digital software and hardware used for accessing official electronic versions of nautical publications shall comply with the recommendations of MSC/Circ.891 Guidelines for the onboard use and application of computers."

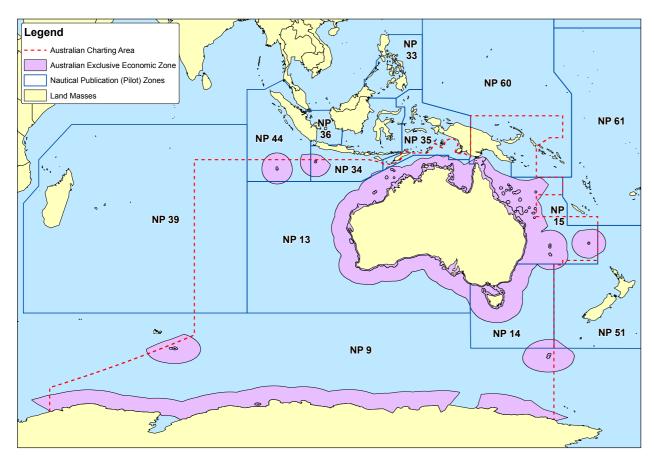
5.2.1 Recommended Nautical Publications

1. The following list of publications is strongly recommended for the Australian Charting Area:

	Australian Nautical Publications
Publication Number	Publication Title
AHP11	Australian National Tide Tables or AusTides
AHP18	Australian Fortnightly Notices to Mariners
AHP19	Australian Annual Notices to Mariners
AHP20	Seafarers Handbook for Australian Waters
AHP24	Australian Chart and Publication Maintenance Handbook
	British Admiralty Publications
Admiralty Sailing Dire	ctions
NP9	Antarctic Pilot
NP13	Australia Pilot Volume I
NP14	Australia Pilot Volume II
NP15	Australia Pilot Volume III
NP34	Indonesia Pilot Volume II
NP44	Malacca Strait and West Coast of Sumatera Pilot
NP60	Pacific Islands Pilot Volume I
Admiralty List of Light	ts and Fog Signals
NP83	Admiralty List of Lights Volume K (available in digital format)
Admiralty List of Radi	o Signals
NP281 (2)	Maritime Radio Stations
NP282	Radio Aids to Navigation, Satellite Navigation Systems, Legal Time, Radio Time Signals and Electronic Position Fixing Systems
NP283 (2)	Maritime Safety Information Services
NP284	Meteorological Observation Stations
NP285	Global Maritime Distress and Safety System (GMDSS)
NP286 (4)	Pilot Services, Vessel Traffic Services and Port Operations (available in digital format)
Miscellaneous Admira	llty Publications
NP100	The Mariners Handbook
NP136	Ocean Passages for the World
NP314	The Nautical Almanac
NP321	Admiralty Guide to the Practical Use of ENCs
NP350 (2)	Admiralty Distance Tables - Indian Ocean
NP350 (3)	Admiralty Distance Tables - Pacific Ocean
NP401 (1 - 4)	Sight Reduction Tables for Marine Navigation
NP735	IALA Maritime Buoyage System
NP5011	Admiralty Symbols and Abbreviations - List of Symbols, Abbreviations and Terms used on Charts
NP5012	Admiralty Guide to ENC Symbols used in ECDIS

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Admiralty Sailing Directions Boundaries / Australian Charting Area



5.3 Australian Nautical Publications

5.3.1 Australian Fortnightly Notices to Mariners (AHP18)

Australian Notices to Mariners (NtM) are published fortnightly. This publication is described in more detail in Chapter 2. NtM are free to download in PDF.

5.3.2 Australian National Tide Tables (AHP11)

- The Australian National Tide Tables (ANTT) contains information for over 500 ports in Australia, Papua New Guinea, Solomon Islands, Antarctica and East Timor. This information includes but is not limited to:
 - predictions for high and low water for each day of the year for over 80 Standard Ports
 - predictions of maximum rates of tidal streams for Torres Strait and Port Phillip Heads
 - tidal stream diagrams for Sydney, Broome and Darwin
 - list of the main 22 harmonic constituents for all Standard and Secondary Ports
 - tidal levels and time difference for all Secondary Ports in relation to the relevant Standard Port.
- 2. The ANTT is printed annually. The planned release date is October each year for the following year. The ANTT can be purchased from your local Australian Hydrographic Service (AHS) Chart Distribution Agent.
- 3. The ANTT is updated via NtM. The relevant notices can be found in section 1 of NtM or accessed automatically, via eNotices.

5.3.3 AusTides (AHP114)

- AusTides is an official electronic product that is equivalent to the ANTT. It has the benefit of producing a
 graphical representation of the tidal curve and predictions at 1, 20, 30 and 60 minute intervals for each
 location represented in ANTT.
- 2. AusTides is available on CD and can be purchased from AHS Chart Agents / Distributors.

Updating AusTides

- 3. NtM will be issued when an update is available for AusTides. Update patches are cumulative, that is each sequential patch release will contain all of the content of previous patch releases.
- 4. Instructions for the installation of update patches can be found at the following website link.

Website link:	www.hydro.gov.au/prodserv/publications/ausTides/tides-patches.htm	

5.3.4 Annual Notice to Mariners (AHP19)

- 1. The Annual Notice to Mariners as described in Chapter 2 is published on the AHS website on the 1st of January each year. It is free to download in PDF.
- 2. The 'Download Entire file' option on the website is not updated for NtM. An updated copy can be sourced by downloading the individual notices 1-27.

5.3.5 Seafarers Handbook for Australian Waters (AHP20)

- 1. The Seafarers Handbook for Australian Waters provides mariners with a description of the Australian physical and jurisdictional environment including Australian regulations and responsible agencies, meteorological broadcasts, ship reporting systems, maritime security, customs, quarantine and immigration information. It combines information from various government agencies under the cover of one nautical publication maintained up to date by NtM. It contains most of the textual information which cannot be shown on navigational charts. The AHS release a New Edition every three years.
- 2. The Seafarers Handbook for Australian Waters can be purchased from your local <u>AHS Chart Agent / Distributor</u>. See <u>AHS website</u> for further details.

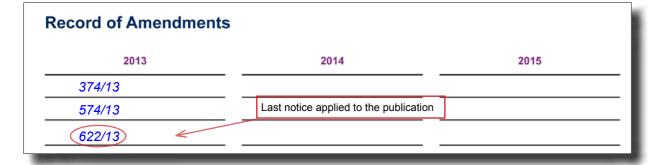
5.4 Updating Australian Nautical Publications

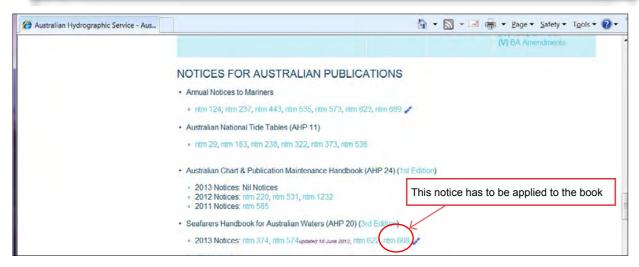
5.4.1 Is Your Australian Nautical Publication Up to Date?

- 1. All publications dispatched from the AHS are uncorrected. This means that your publication at time of purchase may not be up to date. Note: Correcting agents should supply the relevant NtM but this is not guaranteed.
- 2. NtM for all Australian Nautical Publications (current editions only) can be found at the following website link:

Websi	te link:	www.hydro.gov.au/n2m/notices.htm

- 3. To find out if your publication is up to date the following steps should be taken:
 - Check the record of amendments at the front of the book for any corrections that have been applied
 manually. The NtM number, year and page number should be recorded. The last notice applied in
 the example below is 622/13 however, the last notice listed on the AHS website is 668/13 (see next
 page). This notice will have to be applied.





5.4.2 How to Apply Notices to Mariners to a Australian Nautical Publication

- 1. The NtM layout will vary between publications. For example the Australian Seafarers Handbook notice will reference the page and paragraph numbers. The ANTT notices will only reference page numbers.
- 2. In the example 1 below, 2.4.5 is the section paragraph number (paragraph title), the (5) is the fifth paragraph under the title and line 6 is the line number in paragraph 8.

Example 1:

668 AUSTRALIA - Product - Amendment to Seafarers Handbook for Australian Waters AHP20
Australian Maritime Safety Authority (AA680670 - AA680673)

Page 17 (2.4.5) - Australian Maritime Safety Authority - Search and Rescue - paragraph 8 line 6
Delete Australian Ship Reporting System (AUSREP)
Insert the Modernised Australian Ship Tracking and Reporting System (MASTREP)

Example 2:

AUSTRALIA - Product - Amendment to Australian National Tide Tables 2013

Australian Hydrographic Service (AA688485, AA688486)

Page xxx
 Amend
 Brisbane Bar To Chart Datum AUS 237 NC 26 JUL 2013 0.0
 Brisbane Bar To Chart Datum AUS 238 NE 31 MAY 2013 0.0

Page 384
 Amend
 East Moncoeur I. (Port No 60615) To Chart Datum to 0.0
 Curtis I. (Port No 60617) To Chart Datum to 0.0

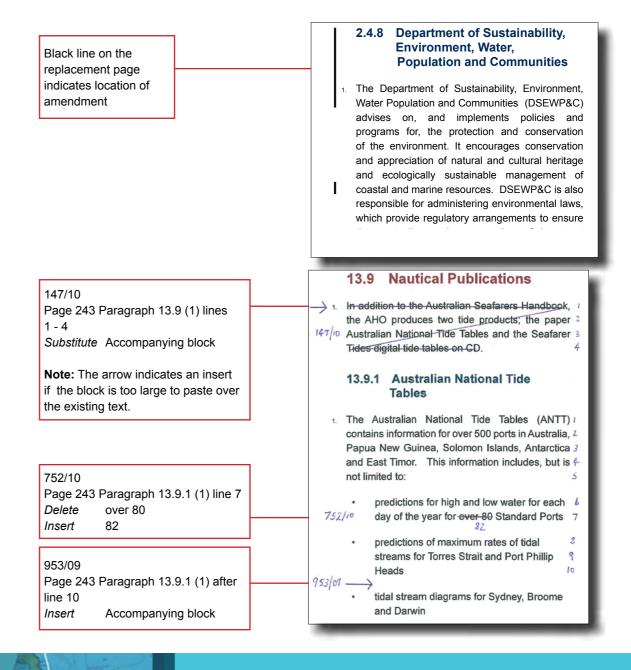
3. There are three commands used to update publications:

Insert

- Insert is used to add new data. It could vary from a small addition or a whole page. Small insertions are indicated with an arrow adjacent to the paragraph / line where the text needs to be added (see example on next page).
- 5. The insert may be large enough to create a new page. In this case, the page can be glued along the spine of the publication. The notes pages at the end of each chapter can also be utilised.

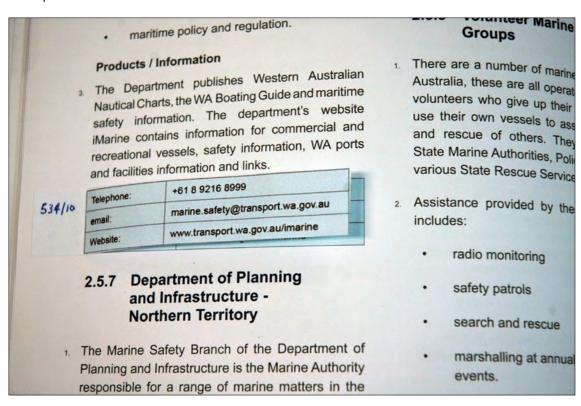
Amend / Substitute / Replace

- 6. These three commands can be used when data needs to change. The amendment can vary from a small correction to a block correction.
- 7. Small correction: one line is to be used to cross out the text. Neatly add in new text near the deleted text.
- 8. Block correction: if the correction is too large, a block correction is used. If a whole page is substituted a black line will be place on the left hand side of the text indicating the corrected text - see below: Small Correction Examples



Of

Example of a Block Correction



9. In some circumstances it may not be practical to paste the block onto the page in question. It may not fit over the original text or there may be a requirement to see the old text as well as the new. If this is the case follow the steps in Sub-Section 5.4.2 (Insert) page 30.

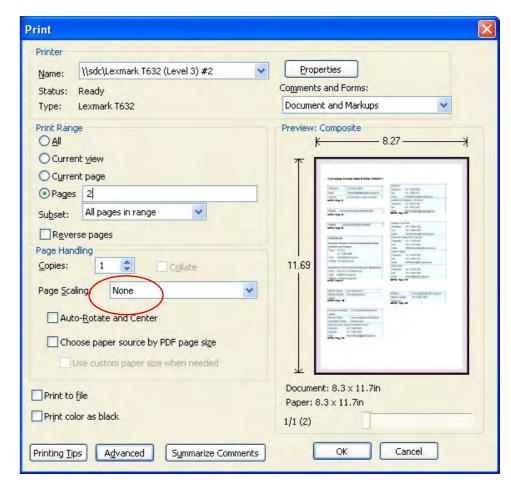
Delete

10. Delete is often used with the insert command. A strike though indicates a deletion.

5.4.3 Important Points to Remember

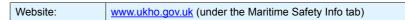
- 1. It is important to keep good records when updating publications. The following steps will ensure your publications are up to date:
 - record the notice number and year adjacent to the correction
 - record the notice number and year in the Record of Amendment Table at the front of the publication
 - check NtM every fortnight
 - always hold the current edition, archive or destroy old editions to avoid confusion
 - complete an audit of corrections every six months. A list of NtM are listed on the AHS website
 - by subscribing to eNotices updates will be sent automatically via email.
- 2. When printing NtM accompanying blocks / pages always select 'no page scaling' see diagram on next page.

Print Setup for Accompanying Blocks



5.5 Admiralty Nautical Paper Publications

- 1. The United Kingdom Hydrographic Office (UKHO) provides a comprehensive range of publications covering all aspects of maritime information. All Admiralty Publications listed in Sub-Section 5.2.1 are kept up to date
- 2. Admiralty NtM can be downloaded from the UKHO website. How to correct Admiralty Publications is explained in Sub-Section 5.5.1page 32 to 5.5.3 page 33.



- 3. NtM for Admiralty publications are also reproduced in the Australian fortnightly NtM as a supplement. These supplements are delayed due to a different production cycle.
- 4. New Editions of Admiralty Publications are released in the following cycles:

Frequency of New Editions	
Admiralty Sailing Directions (Pilots)	3 year cycle
Admiralty List of Radio Signals	Annually
Admiralty List of Lights	Annually
Admiralty Chart Catalogue (NP131)	Annually
Other Publications	As required

5.5.1 Admiralty Sailing Directions (Pilots)

- 1. <u>Admiralty Sailing Directions</u> are often referred to as Pilots. They are designed to assist the mariner on naval and registered merchant vessels of 150 grt or more and provide navigation information complimentary to the area charts. They provide a worldwide coverage in 74 volumes.
- Each volume is on a "Continuous Revision" cycle. The publications are continuously revised by an editor for a period of three years. At the end of the three year cycle a new edition is published. New editions are announced in Section I of the British Admiralty NtM and in Section I of the Australian fortnightly NtM (Pilots for Australian Charting Area only).
- 3. The Australian Pilots Volume 1 to 3 (NP13, NP14 and NP15) are co-produced by the UKHO and the AHS. All content enquiries should be directed to the Nautical Publication Section at the AHS.

Nautical Publication Section email:	hydro.nautinfo@defence.gov.au
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- 4. Amendments that are critical to the safety of navigation are promulgated in Section IV of the Admiralty NtM. Updates are provided for current editions only.
- 5. The UKHO recommends amendments be cut out and pasted into the book. Mariners may, however, prefer to keep amendments in a separate file, and annotate the text of the book in the margin to indicate the existence of an amendment. This latter method enables the mariner to view the old and the new text and may be more appropriate when there are significant numbers of amendments.
- 6. Once the amendment has been completed the NtM edition number and year is to be noted in the "Record of Amendments" at the front of the book. It is good practice to list all editions on the amendment list regardless of whether there is a correction. It shows the mariner what editions have been actioned.
- 7. The quickest and easiest way to check if your Sailing Directions are up to date is to refer to "Amendments to Admiralty Sailing Directions List" which is published inside the Admiralty NtM every quarter (approximately editions 13, 26, 39 and 52), This sheet will state the current edition and all the NtM that apply to the edition. In the example below the Sailing Directions Publication is up to date. The "Admiralty Sailing Directions Amendment List" matches the "Record of Amendments" inside NP15 (example on next page).
- 8. It is recommended that amendments on this list be cross referenced with the Record of Amendments table at the front of the publications on a regular basis.
- 9. A log sheet for nautical publications can be found in Chapter 6 page 34 of this publication.

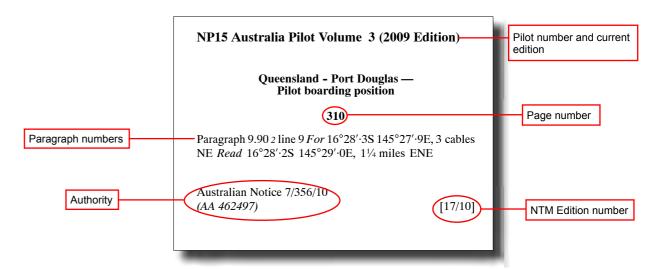
Admiralty Sailing Directions Amendments List

		In force 31 March 2012		
NP no	Page(s)	Title	Weekly Edition	
13	Australia 1	3rd Edition (2011)	40/11	
	2	Navigation and Regulations - Traffic and Operations - Fishing; marine farms	01/12	
	231	Western Australia - Port Walcott - Controlling depths	09/12	
	234	Western Australia – John's Creek — Approach; buoy	45/11	
	235	Western Australia - Dampier - Directions; depths	07/12	
	249	Western Australia - Barrow Island Oil Terminal - Controlling depth	48/11	

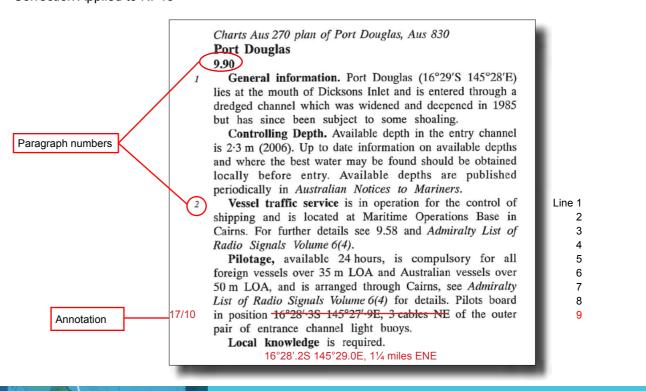
Record of Amendments Table

The table below is to record amendments by Notice to Mariners amendments affecting this volume. Sub paragraph numbers in the margin of the body of the book are to assist the user when making amendments to this volume. Amendments by Notices to Mariners are issued by the AHO and the UKHO. Notices to Mariners 2009 2010 2011 2012 31/09 page 142 07/10 page 143 08/10 NIL

Notice to Mariners Example



Correction Applied to NP15



42

5.5.2 Admiralty List of Lights and Fog Signals Vol K (NP 83)

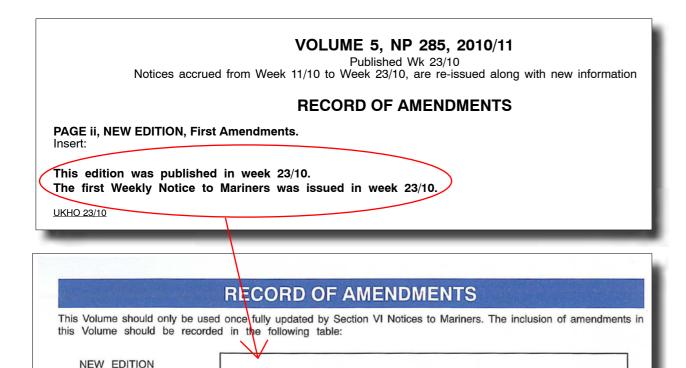
- Admiralty List of Lights are produced annually and lists the latest known information on lights for light structures, light floats, and light buoys over eight metres in height and their fog signals if applicable. Details for all lights listed include the international number, location and/or name, geographical coordinates, characteristics and intensity, elevation in metres, range in sea miles and description of structure.
- 2. Amendments are promulgated in Section V of the Admiralty NtM. All lights in Australia are identified with the letter K followed by the light number (see below).
- 3. It is recommended that amendments be cut out and pasted over the top of the light in question.

Vol K Edition	n 2010/11 continued.						
K1662·3	- Entrance Point. Ldg Lts 303.6°. Front	18 00·41 S 122 12·58 E	F W	• •	2		
	*	*			*		

5.5.3 Admiralty List of Radio Signals (NP281 - 286)

First Amendments

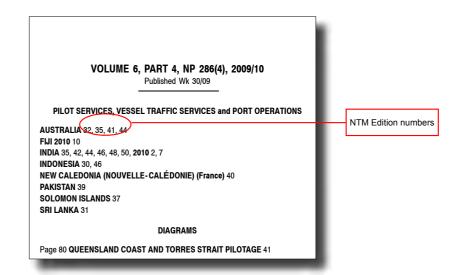
- The Admiralty List of Radio Signals (ALRS) series provides comprehensive information on all aspects of Maritime Radio Communications. The data is organised into six volumes and some volumes are divided into several parts. The volumes relevant to Australia are listed in sub-section 5.2.1 page 28.
- 2. New editions are published annually and amendments for these publications are promulgated in Section VI of the Admiralty NtM. A notification similar to the one below will be published. The text that is circled, is either to be copied or cut and pasted into the box at the top of the amendment list.



Weekly Notices to Mariners (Section VI)

3. Like Sailing Directions, a summary of amendments that affect each volume are published every quarter in the Admiralty Notices to Mariners. See example below.

Admiralty List of Radio Signals Amendments List



5.6 Admiralty Digital Publications

5.6.1 e- Nautical Publications

- 1. <u>ADMIRALTY e-NPs</u> are updateable digital versions of our paper Nautical Publications. e-NPs are encrypted PDF versions of their paper equivalent; they look identical.
- 2. All 74 Sailing Directions (NP1-72), The Mariners Handbook (NP100) and the Nautical Almanac (NP314-14) are available as e-NPs. The e-NPs are updated and sold as a data service on an annual subscription rather than per edition. See the UKHO website for further information.

5.6.2 Admiralty Digital List of Lights

- 1. <u>The Admiralty Digital List of Lights</u> provides light and fog signal information for more than 70,000 unique light structures worldwide. Users can get weekly updates by email and CD, or access the updates online.
- 2. An activation key has to be installed on your computer to update area data files.

More Information:	www.ukho.gov.uk (under Products and Services tab)
Updates online:	http://updates.ukho.gov.uk

5.6.3 Admiralty Digital Radio Signals Volume 6

- 1. The Admiralty List of Radio Signal Vol 6 (NP286) Pilot Services, Vessel Traffic Services and Port Operations is available in a <u>digital database</u>. More than 3000 service locations are updated quickly and efficiently. Users can get weekly updates by email and CD, or access the updates online. See links above for more information.
- 2. Like the Admiralty Digital List of Lights, an activation key has to be installed on your computer to update area data files.

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Chapter 6) LOG SHEETS

6.1 Introduction

- 1. The purpose of this chapter is to provide the mariner with a simple way to record chart and publication corrections, navigational warnings and temporary and preliminary notices.
- 2. All nautical charts and publications outfits carried by a vessel are subject to maritime legislation and regulation which states that all nautical charts and publications must be kept up to date.
- 3. The following log sheets are to assist the mariner with good record keeping and help the maritime authorities conduct routine audits. However, they are not mandatory the mariner can design their own logging system.
- 4. <u>The log sheets</u> are available on the Australian Hydrographic Service (AHS) website in PDF or as an Excel spreadsheet. See paragraph 6.7 on this page

6.2 New Charts / Publications / New Editions Published Sheet

- This form is used to record the following:
 - New Charts
 - New Editions
 - · New Editions of nautical publications
 - · replaced or withdrawn charts.
- 2. NC and NE usually replace existing charts of the same location. These charts may be cancelled or withdrawn. It is important to destroy or archive these charts as soon as you receive the new copy.

		NE	EW CHART	S / PUBLICA	ATIONS / NEV	V EDITIONS PUBLISHED
Chart/		to Mariners dition	Date of	Replacing Chart/	Old Chart / Publication Archived or	NTMs Affecting Chart / Pub Between Publication Date and Date of Receipt
Pub's No	Notice No	Edition No	Receipt	Pubs nos.	Destroyed	Date of Neccipi
201	46	01/13	03/02/13	201	Destroyed	N/A
NP15 (3 rd)	78	02/13	14/03/13	NP15 (2 nd)	Archived	Ed 03/13, Ed 04/13

6.3 Temporary and Preliminary Notices Status Sheet

1. This form is used to monitor Temporary (T) and Preliminary (P) Notices that affect charts. Note: T and P must also be recorded on the chart using a 2B pencil.

	Т	EMPORARY AND PRELIMINARY NOTICES	
T&P Number	Charts Affected	Locality & Subject	Cancelled Date / NTM no
301/12	195, 194, 808	Port Kembla – Dredging new channel	65 /13

6.4 Australian Notices to Mariners Status Sheet

1. This form is used to record all Notices to Mariners (NTM) affecting charts and publications held by the mariner.

		STATUS SHEET FOR AUSTRALIA	N NOTICES TO MARINE	ERS
Chart No	Folio (Defence only)	NTM Edition No and NTM No	AUSCOAST / NAVAREA Warnings	T & P's Actioned
195	7	Ed2 - 99/12, Ed6 -192/12, Ed7- 210/12	125	72/13, 112/13

6.5 AUSCOAST / NAVAREA Warnings Status Sheet

1. This form is used to record all AUSCOAST and NAVAREA Warnings. <u>Note: all warnings must also be recorded on the chart using a 2B pencil.</u>

YEAR:	2013		AUSCOA	ST / NAVAREA WAR	NINGS STATUS SHEET	
A/N	WARNING	POS	ITION	AREA and CHARTS	DETAILS OF WARNING	DATE CANCELLED
	No	LAT	LONG	AFFECTED		NTM NO
Α	159	20°05′.7S	115°12.0E	Northwest cape AUS 415	Special purpose vessel conducting seismic survey	03/01/13 24/13

6.6 Nautical Publications Status Sheet

1. This form is used to record when nautical publications NTM action has been completed.

	NAU ⁻	TICAL PUBLIC	CATIONS STA	ATUS SHEET	
Year.					
NTM Ed No	AHP's (Aust) Completed	A.L.R.S. A.L.L Completed	Pilots (SD's) Completed	Other Pubs Completed	Signature / Date
1	AHP20	NP83, NP286(4)	NP15	NIL	
2					

6.7 Downloading Log Sheets

The Chart and Publication Maintenance log sheets in this chapter are available for download from the AHS website, as an excel spreadsheet or PDF. Select the *Products and Services tab*, then select *Chart and Publications Maintenance Handbook* in the drop down menu. *Product Downloads* can be located at the bottom of the page.

Website link: www.hydro.gov.au/prodserv/publications/cpmh.htm

NEW CHARTS / PUBLICATIONS / NEW EDITIONS PUBLISHED

Signature / Date											
NTMs Affecting Chart / Pub Between Publication	Date and Date of Receipt										
Old Chart / Publication Archived or	Destroyed										
Replacing Chart/	Pubs nos.										
Date of	Receipt										
es to ners ion	Date										
Notices to Mariners Edition	Notice No										
Chart/	Pub's No										

Chart No	Folio (Defence only)	NTM Edition No and NTM No	AUSCOAST / NAVAREA Warnings	T & P's Actioned

TEMPORARY AND PRELIMINARY NOTICES

Signature / Date											
Cancelled Date / NTM no											
Locality & Subject											
Charts Affected											
T&P Number											

Ī									;	<u> </u>
										Ž
									NO	WARNING
									LAT	POS
									LONG	POSITION
									AFFECTED	AREA AND
										DESCRIPTION
-									/ NTM NO	DATE CANCELLED
										SIGNATURE AND

AUSCOAST / NAVAREA WARNINGS STATUS SHEET

36

NAUTICAL PUBLICATIONS STATUS SHEET

Year.....

NTM Ed	AHP's	A.L.R.S.	Pilots	Other	
No	(Aust)	A.L.L	(SD's)	Pubs	Signature / Date
NO	Completed	Completed	Completed	Completed	
1					
2					
3					
4					
5					
6					
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8					
9					
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25					
26					
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STATUS SHEET FOR NAUTICAL PUBLICATIONS

Year.....

NTM Ed	AHP's	A.L.R.S.	Pilots	Other	
No	(Aust)	A.L.L	(SD)	Pubs	Signature / Date
	Completed	Completed	Completed	Completed	
27					
28					
29					
30					
31					
32					
33					
34					
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52					

Chapter 7) GLOSSARY AND REFERENCES

7.1 Glossary of Terms

Admiralty Pilot	Used to describe a volume of Sailing Directions published by the United Kingdom Hydrographic Office.
Admiralty Raster Chart Service	Raster reproductions of official Admiralty charts. ARCS provides global coverage, and charts are supplied on a number of regional CDs.
Almanac	A periodical publication of astronomical data useful to a navigator.
Annual Notices to Mariners	Issued every year, contains general information such as search and rescue to company charts. The publication reproduces the Temporary (T) and Preliminary (P) notices in force on 1st January of that year.
Arc of Visibility	The arc of a light sector designated by its limiting bearings in which a light is visible as viewed from a vessel.
Bearing	The horizontal direction of one terrestrial point from another, expressed as the angular distance from a reference direction. It is usually measured from 0° at the reference direction clockwise through 360°.
Block Correction	Small portion of a chart or publication that can be added to an existing chart or publication to apply corrections. Occasionally called a Patch Correction.
Cable	A unit of distance originally equal to the length of a ship's anchor cable, but now generally considered to be about 600 feet or one-tenth of a nautical mile.
Cardinal System	A buoyage system generally used to indicate dangers where the coast is flanked by numerous islands, rocks and shoals as well as to indicate dangers in the open sea. In this system the bearing (true) of the mark from the danger is indicated to the nearest cardinal Point. Buoys and beacons are assigned shape, colour, and light characteristics in accordance with location relative to the nearest obstruction.
Cautionary Note	Information calling special attention to some fact, usually a danger area shown on a chart, or other publication.
Chart Distribution Agent	An agent that sells charts and publications on behalf of national hydrographic offices.
Conspicuous Object	A natural or artificial mark which is prominent on land or water.
Controlling Depth	The least depth in the approach or channel to an area, such as a port or anchorage governing the maximum draft of vessels that can enter.
Characteristics of a Light	All particularities of a light, such as colour, period, group number, range, height above sea level and arc of visibility. Also called light characteristics.
Chart Datum	A permanently established surface from which soundings and tide heights are referenced, usually Lowest Astronomical Tide.

Chart Note	Small block of text found on a chart giving the mariner additional information for safe navigation.
Cumulative List	This list identifies, by chart number and current edition, each Australian nautical chart within the Australian Charting Area, then lists all Notices to Mariners that have affected each chart during the last two years.
Dividers	Also known as a measuring compass, is a mathematical, drafting or cartographic instrument used to aid measurements of the length of irregular lines and of distances on charts.
Electronic Navigational Charts (ENC)	Vector chart made up of digital objects and attributes displayed in layers, published in S-57 format, by or on the authority of a national hydrographic office. The ENC contains all the chart information necessary for safe navigation and may contain supplementary information in addition to that contained in the paper chart which may be considered necessary for safe navigation.
ENC Cell	In ECDIS the basic unit of ENC DATA covering a defined geographical area bounded by two meridians and two parallels.
eNotice	eNotices is a free service which enables the mariner to receive individual Australian Notices to Mariners by email.
Fathom	A unit of depth equal to 6 feet or 1.83 metres.
GeoTIFF	Geographic Tagged Image File Format - The Australian Hydrographic Service produces raster charts in GeoTIFF format known as Seafarer GeoTIFF.
Harmonic Constituent	One of four or more mathematical elements which, when combined, express the producing force for tides and tidal streams. Each constituent represents a periodic change of relative position of the Earth, Sun and Moon. Also known as tidal constituent or component.
Horizontal Datum	A horizontal datum forms the basis for computations of horizontal positions. A horizontal datum may be defined at an origin point on the ellipsoid (a mathematical model of the earth's surface) such that the centre of the ellipsoid coincides with the earth's centre of mass. The datum used on Australian charts is the World Geodetic System of 1984 (WGS 84).
Hydrographic Note	Reports raised by chart users conveying information that could be useful to mariners and may improve the information on charts and in publications.
Large Scale Chart	A scale involving a relatively small reduction in size. A large scale chart is one covering a small area.
Magenta	A mixture of red and blue in equal parts. Ink used on charts.
Maritime Gazetteer of Australia	The Maritime Gazetteer of Australia is a searchable database containing all the place names used in Australia's official navigational charts.
Mercator Projection	Map projection of the earth onto a cylinder; areas appear greater the farther they are from the equator. Used on small scale Australian charts.

Navaids	Navigational aids such as buoys, lights and beacons. Also referred to as Aids to Navigation.
NAVAREA	The short title of an area in the World–wide Navigational Warning Service.
New Chart	A New Chart usually in a new area not previously charted. New chart limits and / or substantially revised datums and units of measurement.
New Edition	A New Edition of a chart is produced when there is a large amount of new information or a significant amount of accumulated information for a chart that is non safety critical. New Editions incorporate all Notices to Mariners issued for the previous edition. New Editions have the same or similar limits to the previous edition.
Notices to Mariners	A periodical or casual notice issued by hydrographic offices, or other competent authorities, regarding changes in aids to navigation, dangers to navigation, important new soundings, and, in general, all such information as affects nautical charts, Sailing Directions, Lights List and other nautical publications. Australian Notices to Mariners are issued fortnightly.
Parallel Rule	A drafting instrument used by navigators to draw parallel lines on charts. Also known as a Rolling Rule.
Permanent Notice	This notice is issued for the prompt dissemination of permanent changes to information considered important to safe navigation.
Preferred Route	This is a route that has not been surveyed in accordance with the IHO / IMO standards for recommended tracks, but is the preferred track for vessels regarding charted depths.
Preliminary Notice	A preliminary notice is indicated with a (P) adjacent to the notice number. They are issued where early promulgation to mariners is needed e.g. work started on a new shipping channel. A permanent notice will be promulgated when the work is completed.
Raster Navigational Charts (RNC)	A digital facsimile of a paper chart consisting of a matrix of coloured pixels to form an image.
Recommended Track	A route which has been specially examined to ensure so far as possible that it is free of dangers and along which vessels are advised to navigate. The route is surveyed in accordance with the IHO/IMO standards.
Small Scale Chart	A scale involving a relatively large reduction in size. A small scale chart is one covering a large area.
Supplements	An addition to Notices to Mariners e.g. amendments to Admiralty publications, cumulative lists.
Temporary Notice	A temporary notice is issued where the information will remain valid only for a limited period. A temporary notice is indicated with a (T) adjacent to the notice number.

Tracing	A tracing is produced to assist the mariner to update charts. They are drawings of the Notices to Mariners that enable the position of a change to be plotted precisely.
Vertical Datum	A vertical datum is used for measuring the elevations of points on the Earth's surface. The majority of Australian charts are referenced to Lowest Astronomical Tide.
Withdrawn Charts	Charts withdrawn from chart catalog. They can be totally withdrawn without replacement or can be replaced by another chart usually with the same number.
ZOC Categories	ZOC Categories quantify the combined effects of survey and charting quality in all areas of large and medium scale charts. The ZOC coding consists of five quality categories for assessed data, with a sixth category for data which has not been assessed.
ZOC Diagram	A small scale diagram on each chart that indicates areas of differing survey reliability. Each diagram is accompanied by a table that summaries the meaning of ZOC Categories. The ZOC Diagram indicates which areas can be navigated with confidence, and which must be navigated with caution.

7.2 Acronyms

ACW	AUSCOAST Warning
ADF	Australian Defence Force
АНР	Australian Hydrographic Publication
AHS	Australian Hydrographic Service
AIS	Automatic Identification System
ALRS	Admiralty List of Radio Signals
AMB	Australian Maritime Boundaries
AMC	Australian Maritime College
AMSA	Australian Maritime Safety Authority
ANTM	Annual Notice to Mariners
ANTT	Australian National Tide Tables
ARCS	Admiralty Raster Chart Service
ATON	Aids to Navigation
DSA	Designated Shipping Area

EAC	East Australian Current
ECDIS	Electronic Chart Display and Information System
ECS	Electronic Chart System
EEZ	Exclusive Economic Zone
ENC	Electronic Navigational Charts
ESSA	Environmentally Sensitive Sea Area
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
GBR	Great Barrier Reef
GBRMP	Great Barrier Reef Marine Park
GBRMPA	Great Barrier Reef Marine Park Authority
GPS	Global Positioning System
НАТ	Highest Astronomical Tide
HCRF	Hydrographic Chart Raster Format
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IC-ENC	International Centre for ENCs - a Regional ENC Coordinating Centre operated by UK Hydrographic Office and in collaboration with the Australian Hydrographic Service
IHO	International Hydrographic Organization
IMO	International Maritime Organization
INT 1	International Chart Series - Symbols Abbreviations Terms Used on Charts
ISO	International Standards Organization
LAT	Lowest Astronomical Tide
MGA	Maritime Gazetteer of Australia
MPA	Marine Protected Area
NP	Nautical Publication - UKHO
NTM	Notices to Mariners
OEMs	Original Equipment Manufacturer
Р	Preliminary notice

PDF	Portable Document Format
POD	Print on Demand. The practise of printing paper charts from digital chart files which are up to date to the latest Notices to Mariners
PSSA	Particularly Sensitive Sea Area
RCDS	Raster Chart Display System - a mode of operation for ECDIS which uses official raster charts (known as RNC) in areas where ENC have yet to be produced by Hydrographic Offices
RENC	Regional ENC Coordination Centre
RNC	Raster Navigational Charts
S - 32	IHO Hydrographic Dictionary
S - 52	IHO Specifications for Chart Content and Display Aspects of ECDIS
S - 57	The IHO data format and specification which governs the content, creation and display of ENC
S - 61	IHO Product Specification for Raster Navigational Charts
S - 63	IHO Data Protection Scheme
SD's	Sailing Directions
SENC	System ENC - An ENC which has been converted from its native S-57 format to a format that can be used in a particular ECDIS
SOLAS	International Convention for the Safety Of Life At Sea
STW	IMO Committee on Standards for Training and Watch-keeping
Т	Temporary notice
икно	United Kingdom Hydrographic Office
UNCLOS	United Nations Convention on Law of the Sea
VARs	Value Added Reseller
WEND	World ENC Database
WGS84	World Geodetic System 1984 (horizontal datum)
ZOC	Zone of Confidence

7.3 References:

- Australian Maritime Safety Authority 2010, Safety of Navigation and Emergency Procedures. Marine Orders
 Part 21, Issue 7 (Order No. 6 of 2010), AMSA, Canberra.
- 2. Australian Maritime Safety Authority 2010, Carriage and Use of Electronic Chart Display and Information System (ECDIS). Marine Notice 15/2010, AMSA, Canberra.
- 3. Australian Maritime Safety Authority 2005, Limitations and Understanding of Charts and Hydrographic Surveys. Marine Notice 4/2005, AMSA, Canberra.
- 4. Australian Transport Council 2002, National Standard for Commercial Vessels PART B, General Requirements. National Maritime Safety Committee, Rozelle.
- 5. International Hydrographic Organization 1994, IHO Hydrographic Dictionary, Ed 5, Special Publication S-32, IHO, Monaco.
- 6. International Hydrographic Organization 1999, Product Specification for Raster Navigational Charts (RNC), Special Publication S-61, IHO, Monaco.
- 7. International Hydrographic Organization 2000, IHO Transfer Standard for Digital Hydrographic Data, Ed. 3.1, Special Publication S-57, IHO, Monaco.
- 8. International Hydrographic Organization 2007, IHO Hydrographic Dictionary: Glossary of ECDIS Related Terms, Special Publication S-32 Appendix 1, IHO, Monaco.
- 9. International Hydrographic Organization 2008, IHO Data Protection Scheme, Ed 1.1, Special Publication S-63, IHO, Monaco.
- 10. International Hydrographic Organization 2010, Facts About Electronic Charts and Carriage Requirements, Ed 1.0.0, Special Publication S-66, IHO, Monaco.
- International Hydrographic Organization 2010, Specifications for Chart Content and Display Aspects of ECDIS, Ed 6.0, Special Publication S-52, IHO, Monaco.
- 12. International Maritime Organization 2009, SOLAS: consolidated text of the International Convention for Safety of Life at Sea, 1974, and its protocol of 1988, 5th ed, IMO, London.
- 13. Navigation Act 2012 (Commonwealth of Australia).
- 14. United Kingdom Hydrographic Office 2005, British Admiralty Publication: CHART 5011 Symbols and Abbreviations used on Admiralty Charts, Edition 3, Taunton.

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