

# 100 years of hydrography in Defence...

On 1 October 1920, the Royal Australian Navy (RAN) Hydrographic Service was formed. To commemorate 100 years of hydrography in the RAN, we take a look at its history and how the service has evolved over the years.

## The First World War and the Early Years

In 1914, when a then-young Royal Australian Navy captured the territory of German New Guinea, the operation took place without a dedicated, hydrographic survey capability.

Later in the war, the German ship *Komet* was captured and renamed HMAS *Una*, and, in 1915, undertook the first hydrographic survey of Sewa Bay on Normanby Island in the Milne Bay Province.

This survey is now the oldest surviving hydrographic survey by a commissioned RAN ship.

According to the RAN's official history of WWI, *Una* developed a reputation as a hardworking vessel.

*Una's* log, for the greater part of 1915, was a record of administrative cruises and surveying expeditions where a vast amount of knowledge was gained for the New Guinea Government and RAN.

The RAN Hydrographic Department was established five years later with survey ships HMS *Fantome* and HMAS *Geranium*.

Specialist survey sailors went without a name until July 1920, when Admiralty monthly orders announced the 'surveying recorders - establishment of roster'.



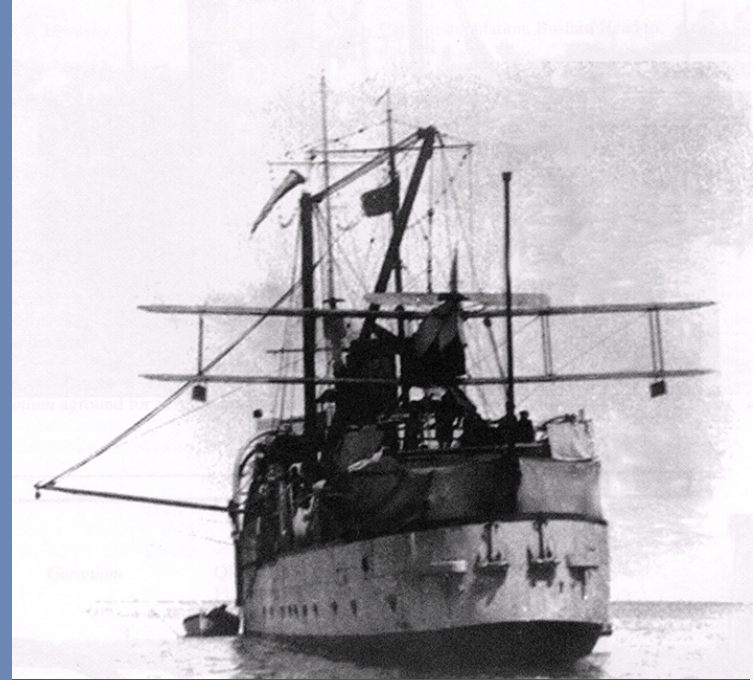
HMAS *Geranium* – the first of Australia's hydrographic surveying ships.

Source: The Australian Hydrographic Office

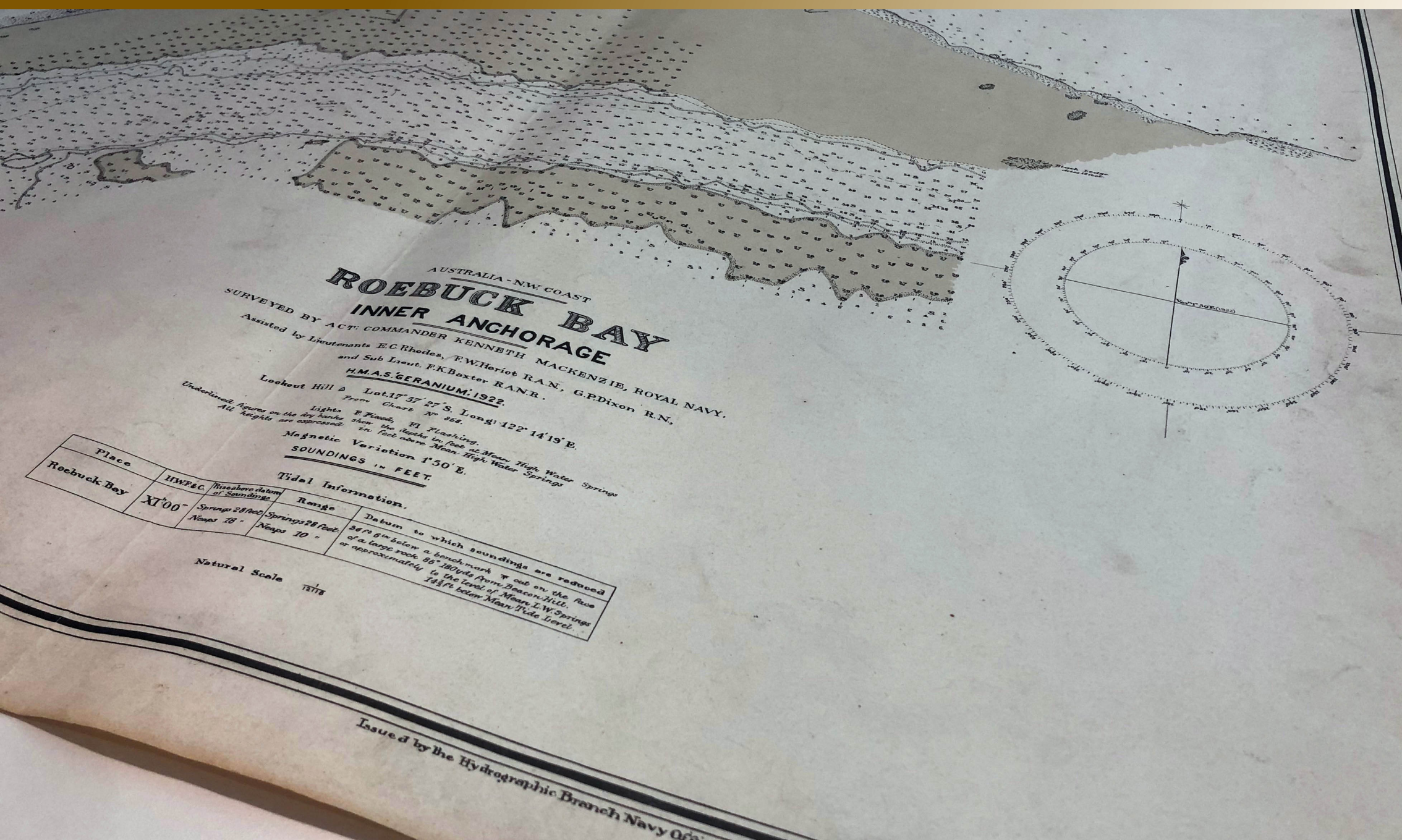
In 1922, an Australian port chart was prepared with aerial photographic assistance of a Royal Australian Air Force (RAAF) Fairey IIID aircraft. Following this, it was decided that aircraft could survey the Great Barrier Reef by photographing large areas that were difficult to access by conventional hydrography.

The Great Barrier Reef was an area of interest for the newly established RAN Hydrographic Department. Despite knowing of the reef since Captain Cook's voyage, detailed knowledge of the area was sparse. HMAS *Geranium* was modified to carry and operate the Fairey aircraft and, 19 reefs were photographed in 1924.

In 1926, the newly acquired HMAS *Moresby* began work in the Great Barrier Reef, assisted by the RAAF 101 Flight.



HMAS *Geranium* with RAAF Fairey IIID plane embarked  
Source: The Australian Hydrographic Office



The first unnumbered Australian chart for navigational use, Roebuck Bay-Inner Anchorage is released in 1924, based on HMAS *Geranium*'s 1922 survey under the supervision of CMDR C.W. Stevens, RAN

Source: The Australian Hydrographic Office



## WWII

In the early years of WWII, there was not a strategic imperative to build specially designed survey ships.

When the war came to the Pacific in 1941, the RAN had just two vessels, Moresby and her tender Vigilant, prepared for survey duties.

By the end of the war, the RAN Hydrographic Branch went from two vessels and a handful of trained 'on-the-job' officers, to a squadron of survey frigates and corvettes manned by a cadre of experienced men who routinely conducted work under fire. No other seagoing branch of the RAN expanded in such a way, or was so unrecognisably different in form and structure, from before the war.

During WWII, more than 1.5 million chart impressions were printed by the RAN Hydrographic Branch for Allied forces.



Often surveying under fire, Australia's hydrographic service was highly decorated in WWII, with 2 Orders of the British Empire, 13 Distinguished Service Crosses, 4 Distinguished Service Medals, 14 Mentioned in Despatches and multiple United States Legion of Merit Awards.

Source: The Australian Hydrographic Office

## RAN Hydrographic School

Up until 1966, all Survey Recorder (SR) training was 'on-the-job' at sea, except for a brief period in 1949, when prospective surveying officers were trained in the United Kingdom.

In March 1966, the RAN established the Hydrographic School at HMAS Penguin, where all future SR courses would be conducted. For instructional purposes, Survey Motor Boat Sandfly (from HMAS Moresby) was berthed at HMAS Penguin, until 1972, when she was retired and replaced by Motor Boat 168.

In the Hydrographic School's first year, Leading Seaman SR courses were conducted to train the ABSRs who had qualified under the old 'on-the-job at sea' rules.

In 1981, the RAN Hydrographic School conducted the first H4 Course. The International Hydrographic Organization (IHO) and the Fédération Internationale des Géomètres (FIG) recognised this course as a Category B Standard.

Training has continued to evolve over the years to reflect the changes in technology; from single-beam to multi-beam echo sounders and satellite derived bathymetry.

In 2019, the RAN Hydrographic School was renamed the Maritime Geospatial Training Centre.

Today the MGTC trains both RAN and International students in conducting the courses for:

- Initial Entry Hydrographic Surveying
- Intermediate Hydrographic Surveying
- H2 Hydrographic Surveying and
- Military Meteorology and Oceanography

Since its foundation, the school has trained over 2200 students.



*The RAN Hydrographic School was key to building hydrographic capacity in the region, strengthening Australia's relationships with partners.  
Source: The Australian Hydrographic Office*

## LADS

Australia has been at the forefront of hydrographic technology development, a good example of this is the Laser Airborne Depth Sounder (LADS) Flight that entered service in 1993, and conducted surveys in shallow and hazardous navigational areas where ships could not initially enter.

Australia was the first hydrographic office to use a pulsed laser from an aircraft for bathymetric surveying (despite the name implying the use of a depth 'sounder').

Although only a small unit, with less than 20 Navy personnel and contractors, LADS completed more than 3000 sorties and 186 surveys covering more than 50,000 square nautical miles.

LADS surveyed as far afield as Macquarie Island in the South, New Guinea to the North, Fiji to the east and the Coco-Keeling Islands to the West. She also flew missions immediately after the referendum for independence in East Timor in 1999 as part of Op Tanager.

LADS Flight conducted its final sortie in November 2019.



## 29 Hydrographic Force Elements

Current platforms in service include four Paluma-class Survey Motor Launches (Paluma, Mermaid, Shepparton and Benalla), two Leeuwin-class Hydrographic Ships (Leeuwin and Melville), and the Maritime Geospatial Warfare Unit comprising four Deployable Geospatial Support Teams (DGST) in addition to tactical Mobile METOC teams.

Despite Paluma being recognised as the First Lady of the Fleet – the longest serving RAN ship in commission – all these vessels continue to conduct geospatial data collection activity to support both nautical charting activities as part of Defence’s national nautical charting obligations in addition to the more historical role of military data gathering to support Defence activities, exercises and operations.

The vessels have undergone significant upgrades over their lifetimes, and now sport some of the most advanced and technically complex multi-beam echo sounders, sonars and other environmental data collecting instrumentation; placing them at the cutting edge of data collection activity and capability in the region, and indeed the world.



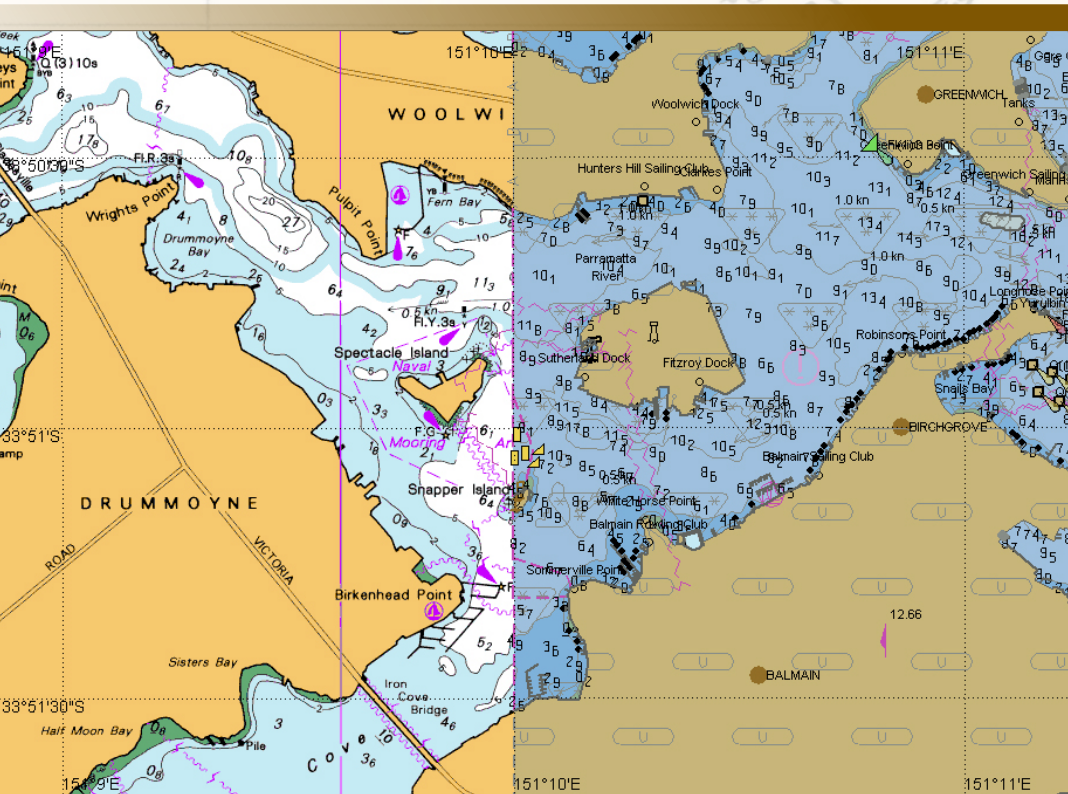
Hydrographic Ship sailing into Sydney Harbour.  
Source: The Australian Hydrographic Office



Survey Motor Launches in formation.  
Source: The Australian Hydrographic Office

## 2. The Present

In 2017, the Australian Hydrographic Office transitioned out of Navy and now sits firmly in the Australian Geospatial-Intelligence Organisation of the Defence Intelligence Group – a natural fit to exploit the synergies of the geospatial intelligence communities within Defence. The vessels and teams however remain proudly serving Navy under Fleet Command, providing environmental data collection capability to Fleet, MAROPS and JOC.



Sydney Harbour – with the Paper Nautical Chart on the left and the Electronic Navigational Chart on the right. ENC provide mariners with richer geospatial information supporting maritime safety and protection of the marine environment.

Source: Australian Hydrographic Office

## The Future

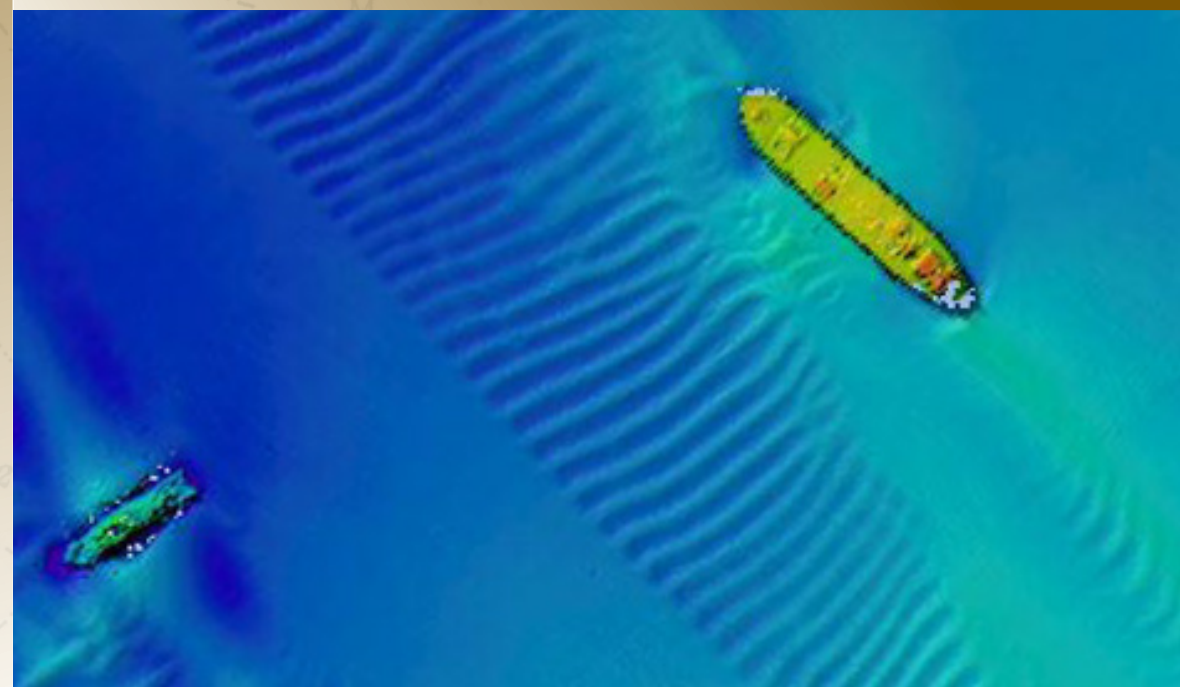
Australia, through the Australian Hydrographic Office, is responsible for surveying and charting one-eighth of the world's oceans; an area covering over 8.5 million square nautical miles. To get the job done, the Australian Hydrographic Office and the RAN's HM Defence Elements draw on the depth of experience gained over the past 100 years.

Today, RAN hydrographic surveyors, and civilian geospatial analysts and nautical cartographers produce and maintain over 1300 electronic and paper nautical charts, as well as tide tables and other nautical publications.

The combined work of Australia's hydrographic community provides Australia with a well-regulated and safe maritime environment.

These efforts continue into a bright future, with the establishment of the HydroScheme Industry Partnership Program, a twenty year, multi-billion dollar investment into hydrographic surveying, between Government and industry that will continue to position Australia as a strong maritime nation.

Military Survey activity remains a priority for Navy, and together, the Australian Hydrographic Office and Navy have a bright future delivering unrivalled navigational safety products and Maritime GEOINT to support recreational mariners, maritime trade and Defence activities – all delivered by a highly skilled and professional civilian and uniformed workforce.



Shipwreck discovered during the first Hydroscheme Industry Partnership Program survey off Cairns.  
Source: Australian Hydrographic Office



*At the Australian Hydrographic Office, a nautical cartographer works on some of Australia's 1342 official paper and electronic nautical charts, combining historic data with contemporary imagery and satellite derived bathymetry. Source: Australian Hydrographic Office*