



Fact Sheet: AusENC

Official charts, unofficial charts & chart plotters

Many recreational mariners, and some Australian domestic commercial mariners, use charts that have been 'remanufactured' for use in chart plotters.

These 'remanufactured charts' are typified by:

- Absence of any data quality indicators depicting how poorly surveyed an area may be,
- Repeated instances of critical major hazards being omitted,
- Have update rates that lag behind official charts by several years,
- User agreements that require they be acknowledged as not being suitable for navigation.

These remanufactured charts often look very professional, but they are not warranted as suitable for safe navigation by either the Commonwealth or the manufacturer.

This Fact Sheet explains the differences between official charts, unofficial charts and chart plotters.

Official nautical charts

Which charts are the official ones?

The UN Convention for Safety Of Life At Sea (SOLAS) specifies that 'official charts' are those produced by a national hydrographic office or other government institution. This is then reflected in national legislation.

In Australia and its territories, Papua New Guinea and Solomon Islands, the only official charts are those published by the Australian Hydrographic Office (AHO). Similar arrangements apply for all other coastal nations.

The official charts produced by the AHO include:

- Electronic Navigation Charts (ENC) - all ENC carry a two letter prefix of AU, PG or SB.
- Paper Nautical Charts (PNC) - all PNC carry a three-letter prefix of AUS, PNG or SLB. Some PNC also carry an *additional* INT number to denote they are part of international paper chart coverage.

'Electronic Navigation Charts' or 'electronic charts'?

Only national hydrographic offices may produce charts referred to as 'ENC'.

By definition, 'ENC' refers to an official electronic chart, produced in the S-57 format and encrypted using the S-63 standard. Anything else must use the term 'electronic chart', or similar.

ENC can be used on systems ranging from full Electronic Chart Display and Information Systems (ECDIS) installations on large commercial vessels, through to smaller Electronic Charting systems (ECS) on domestic commercial vessels, and laptop or tablet computers and recreational vessels.

Within Australia, official AU, PG and SB ENC are most commonly available through the AusENC service at heavily discounted prices, through the following national distribution agents:

- AHO (port authorities, marine pilots, Government users): hydro.sales@defence.gov.au
- 33 South Marine Electronics (Sydney): www.33-south.com
- Boat Books Australia (Sydney): www.boatbooks-aust.com.au
- Cairns Charts and Maps (Cairns): www.cairnscharts.com.au
- The Chart and Map Shop (Fremantle): www.chartandmapshop.com.au

Outside Australia, the same ENC may also be acquired through any of the following resellers affiliated with the International Centre for ENC (www.IC-ENC.org):

- Admiralty Vector Chart Service
- ChartCo
- ChartWorld
- C-Map (commercial services only)
- Maris Maritime Information Systems
- Navtor
- Primar

Official charts are the result of months of painstaking work to ensure they are as accurate as possible using the information available. Official charts do not 'gloss-over' those areas where only sparse information is available, and all are covered by a weekly or fortnightly update service.

In contrast, a number of companies are licensed to reproduce content from the official charts for use in smaller chart plotters.

These 'unofficial' charts are not warranted as suitable for safe navigation by either the Commonwealth or the manufacturer.

While the manufacturer may claim they contain additional data to meet specific purposes, or claim regular updates, mariner and AHO experience has repeatedly found these may also contain major cartographic errors (such as missing reefs) or delays of up to three years for the inclusion of critical new information. If used, they should be used with caution, and only after referring to the official charts.

Paper Nautical Charts

PNC are derived from ENC produced by the AHO – this practice is now widespread amongst most national hydrographic offices.

Within those produced by the AHO, the PNC are a subset of the content contained in ENC – while the level of detail in ENC has grown over time, the level of content in PNC remains limited by the size of paper available, and a practical limit driven by legibility – a paper chart can't be 'zoomed-in'. Despite this, the content of PNC – not ENC – remains the source of most privately produced unofficial electronic charts.

Do I need to carry an official chart?

Most commercial vessels over 12m in length, irrespective of State of registration, are required to use official charts unless specifically exempted.

For more information refer to AHP20 Mariners Handbook for Australian Waters, Chapter 12, which may be downloaded from the AHO website:

<http://www.hydro.gov.au/prodserv/publications/ahp20.htm>

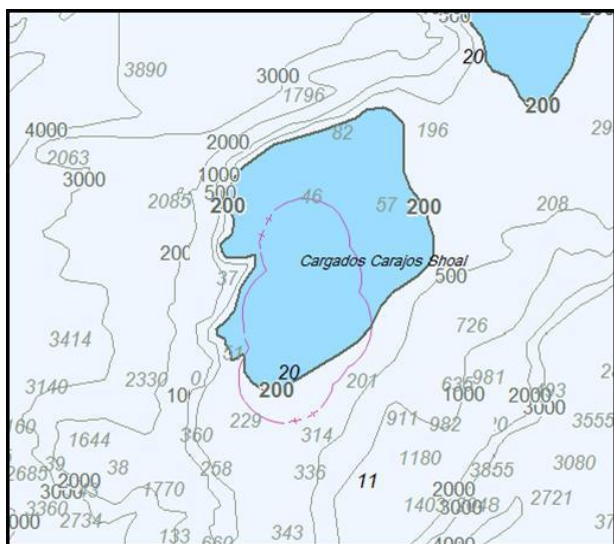
For recreational users it is recommended good practice when going off-shore or in unfamiliar areas.

Why should I be cautious using unofficial charts?

'Unofficial' electronic charts are tailored products intended for small chart plotters only – while they are extremely popular, and many recreational mariners use them without incident, they are not intended to support safety of navigation. This is clearly stated in each product's user agreement.

This is because unofficial charts occasionally omit critical features, while almost all omit the quality indicators that permit mariners to assess risk and how close they should pass to a feature.

Finally, charts are living documents – navigation aids move and change, while the seabed in many areas is dynamic. Adhering to a frequent update cycle is therefore more important than when using a land map, where any changes, such as street signs, are easily visible ahead. The AHO regularly receives formal and informal reports from recreational vessels that have found or hit features not shown on their unofficial charts up to three years after being included on official charts.



Unofficial electronic chart with reef, islands and obstructions missing.

- *The primary indicator is a Territorial Sea area without any corresponding 'territory' charted.*
- *A large reef is missing, along with a series of islands on the reef.*
- *The 200m contour excludes shallower depths.*
- *The 11m obstruction is one of several not highlighted, while a 15m obstruction is missing, and a false 10m shoal appears to have been added.*

The racing yacht 'Vestas Wind' was substantially destroyed when it hit the missing reef in 2014 while using unofficial electronic charts.



The official ENC at the same scale, with reef, all islands, obstructions and depths all correct. The depth data has been appropriately selected to improve legibility, with remaining detail available as the display is progressively 'zoomed in'. The resulting Safety Depth contour includes all dangers to navigation.

How should electronic charts be used in conjunction with official charts?

To address these issues, there are a few practices worth following:

- Firstly, carry a copy of the official chart, even if only for reference. A PNC may still be convenient, though ENC offer greater functionality and detail. Make sure your official chart is up to date, or at least the current edition.
 - To check that a PNC is the current edition, refer to the relevant AHO Navigation Fact Sheet, or follow the procedure in Chapter 4 of AHP24, the Australian Chart & Publication Maintenance Handbook. The handbook is available as a free download from the AHO website: <http://www.hydro.gov.au/prodserv/publications/ahp24.htm>
- Step through your unofficial charts before commencing each leg of your planned voyage. Compare them to the official ones, then note any differences. In particular, note any areas shown as poorly surveyed or unsurveyed on the official charts - the unofficial ones frequently (and incorrectly) gloss over these areas in the interests of appearance and marketing. If there really is reliable survey data in these areas, the official charts will include it.
- Make sure your GPS is set to display position in relation to the WGS84 mapping system. Most electronic charts, whether official or unofficial, are referenced to this datum. For more information refer to the AHO Navigation Fact Sheet – GPS Receivers and Chart Datums.
- Keep a good lookout, particularly in any unfamiliar area. Slow down in shallow areas, particularly where the water is not sufficiently clear, so that your stopping or turning distance is less than the distance at which you can potentially see any submerged obstruction ahead. Remember, visibility of reefs and other obstructions when the sun is low in the sky, and after sunset, is effectively non-existent.
- Finally, compared to the cost of supplies for even a short cruise, an official chart is cheap. When compared to the cost of replacing an expensive yacht, it's an absolute bargain.