



## Under Keel Clearance Management System UKCM

### What is Under Keel Clearance?

Under Keel Clearance, or UKC, is the vertical distance between the lowest part of the ship's hull and the seabed. Maintaining a UKC margin in Torres Strait is important because it ensures a ship's keel is kept clear of the seabed and minimises the chance of the vessel running aground in that area.

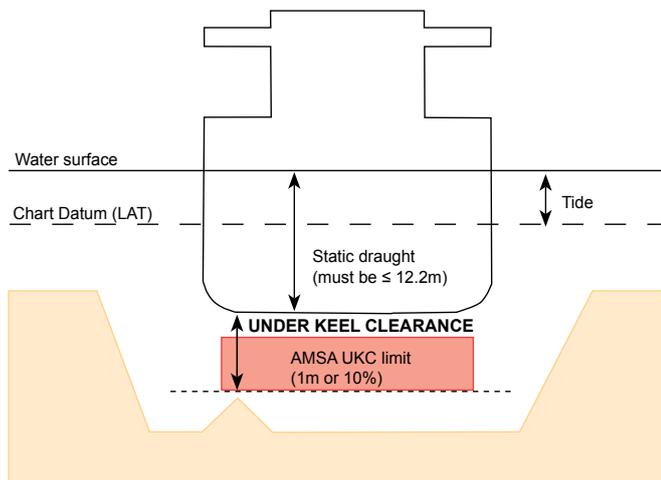


Figure 1 - Under Keel Clearance explained

### What is UKCM?

UKCM stands for 'Under Keel Clearance Management.'

The UKCM system is provided by the Australian Maritime Safety Authority (AMSA) as a specific aid to navigation for large ships transiting Torres Strait in Australia's north.

It is an advanced web-based system for enhancing the safety of those large vessels whose keel is close to the seabed in the shallow Torres Strait region.

The system was declared 'operational' by AMSA in December 2011. UKCM systems are often used in ports; however this is the first time a UKCM system has been implemented in a coastal environment in Australia.

### Area of Operation

Torres Strait can be a navigationally hostile and demanding environment. It lies between Papua New Guinea and the northern tip of the Australian continent and is a vital shipping route for the Asia-Pacific region. Numerous large vessels transit Torres Strait and face many challenges to safe navigation due to the numerous reefs, shallow waters, complex tides, strong tidal streams, strong winds and seasonal rain squalls which affect visibility.

The UKCM system is in use for vessels transiting the Prince of Wales Channel, Varzin Passage and Gannet Passage in Torres Strait as depicted in Figure 2.

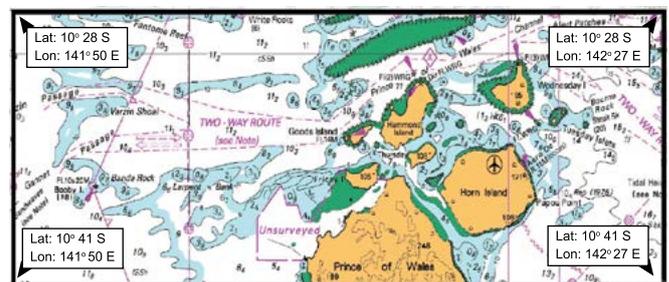


Figure 2 - Area of Operation of UKCM System in Torres Strait

### How does UKCM work?

The UKCM system (see Figure 3) is a web-based system. The UKCM system estimates a vessel's UKC in real time by using:

- detailed channel depth information,
- vessel positioning information (from AIS),
- vessel motion predictions, and
- environmental data from tide, tidal stream and wind sensors.

The UKCM system allows coastal pilots and vessel operators to plan and monitor the safe and efficient passage of vessels that are required to use the system in Torres Strait (ie. all tankers, and other vessels with draughts between 8 m and 12.2 m). By using a defined set of operational parameters, the UKCM system allows the calculation of tidal windows to meet AMSA's UKC requirements. The system can then be used to monitor the UKC margin throughout the vessel's transit.

### The UKCM system

All coastal pilots transiting ships through the Prince of Wales Channel, the Gannet Passage or the Varzin Passage, will use the UKCM system for vessels with a draught of eight metres or more. Certain circumstances may warrant the use of the UKCM system by pilots for vessels of lesser draught.

The responsibility for safe navigation continues to reside with mariners (masters and pilots) through the appropriate use of the UKCM system. This would be done in conjunction with other aids to navigation, official hydrographic products and prudent seamanship, which includes voyage planning as defined in IMO Resolutions.

The UKCM system complements the recent extension of the Great Barrier Reef and Torres Strait Vessel Traffic Service (REEFVTS) as one of a number of protective measures implemented by AMSA to enhance the safety of shipping in these environmentally sensitive marine areas.

### Want more information?

You can access UKCM information on the AMSA website at: [www.amsa.gov.au/navigation/shipping-management/pilotage/ukcm-pilots/index.asp](http://www.amsa.gov.au/navigation/shipping-management/pilotage/ukcm-pilots/index.asp)

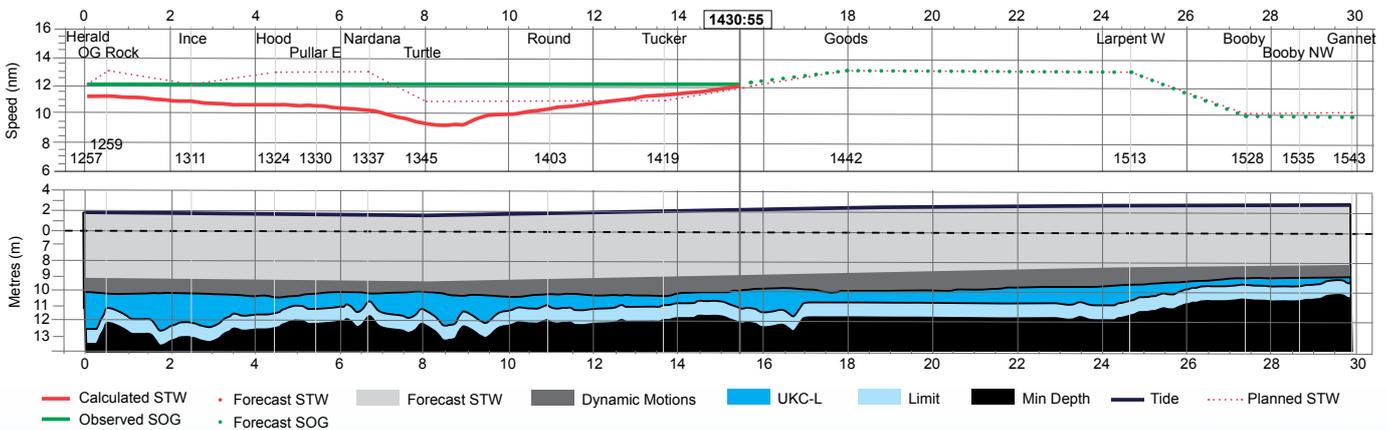


Figure 3 - AMSA's UKCM system monitors Under Keel Clearance

