Marine Rescue Memory Jogger –Reporting Your Position.

Position reporting is a vital function in the marine rescue business. Accuracy of position is essential to enable the swiftest response to an incident (whatever that may be).

The BEST position report we can get is a Latitude and Longitude (Lat/Lng), either from a chart plotter position or direct from GPS receiver, but with a couple of important advisories

Firstly, the GPS receiver or electronic navigation system needs to be set up on the WGS84 geodetic system. All current Australian Hydrographic Office charts are based on the WGS84 geodetic system; other geodetic systems may introduce errors up to 100m in position. This is a vital point for both normal navigation as well as position reporting in an abnormal situation.

Secondly, if you report your position in degrees and whole minutes, your position is accurate to 1nm² (1850m x 1850m approx.). If you report your position in degrees, minutes and seconds your position is accurate to about 30m x 30m, and if you report in degrees and decimal minutes (e.g. 31°25.345S) with one decimal place 185m x 185m; with two decimal places 18.5m x 18.5m. Most GPS receivers can be set to give positions to three decimal places, as such reporting in three decimal places is as accurate as we can achieve (within the limits of the GPS system accuracy).

So needless to say, the preferred position report format is degrees and decimal minutes to 3 decimal places.

Other methods for position reporting are available but substantially less accurate than Lat/Lng. Amongst these methods is DR reporting (e.g. 4nm off abeam Cape Solander, or abeam Norah Head). Possible inaccuracies in DR position reporting can be coastal feature recognition, distance off features and "abeam", or a combination of the all foregoing.

The dangers of DR position reporting are numerous;

- Are you in the position along the coast that you think? Many coastal features look similar from 3 to 5 nm at sea (especially at night), correct recognition of coastal features in DR position reporting is a pivotal factor in position reporting. Incorrect recognition can locate you a large distance from your actual location.
- Estimating your distance from a landmark features is highly inaccurate unless your vessel is equipped with radar, a chart plotter or a range finder. A two or three bearing plot of landmarks is also a valid means of estimating distance off.
- Abeam, is another substantially flawed position reporting method, see below.

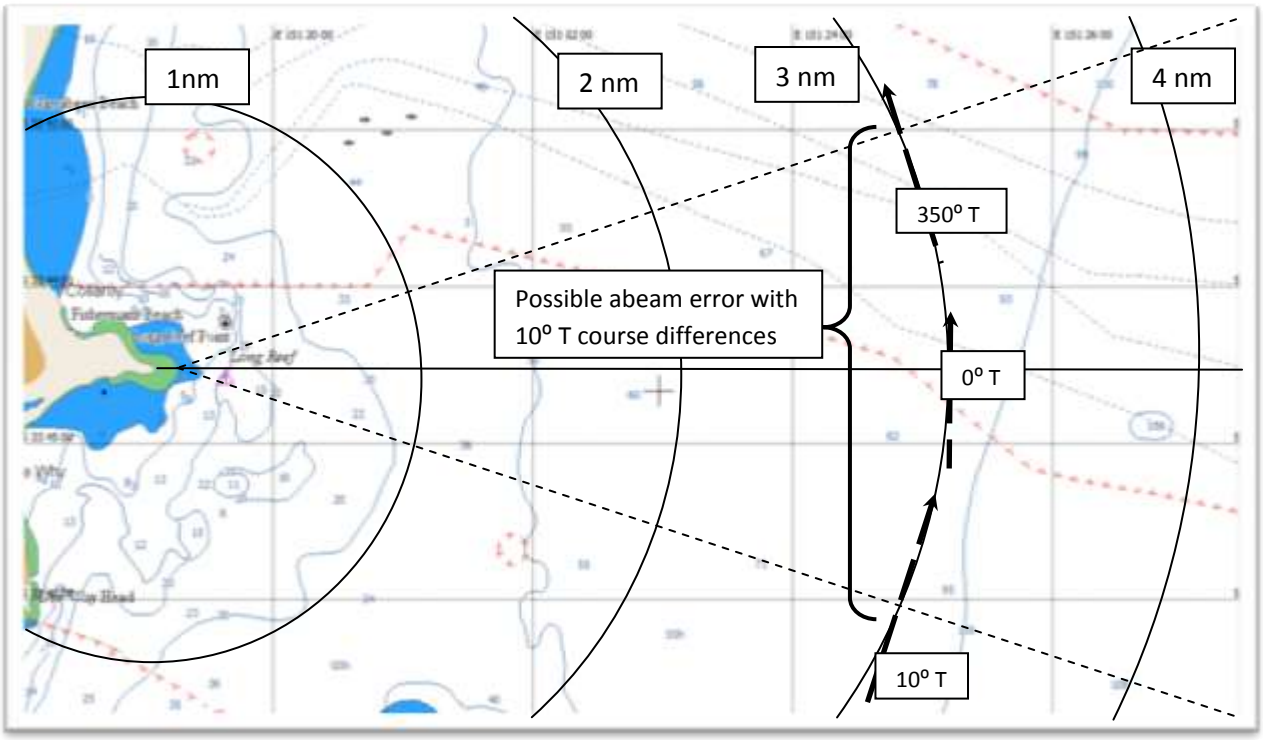
Reporting abeam of a landmark is a particularly inaccurate method of position reporting. If we first look at abeam, it means; at 90° to the fore and aft axis of your vessel, and this is where an error can creep occur (see diagram). The further offshore the greater the level of error.

If we consider a 5° & 10° course either side of a True North (0°T) abeam we will find position errors as per the following Table.

Distance error in position on the same latitude

Course from 0°T	± 5°T	± 10°T	± 20°T
Distance off L'mark			
2 nm	0.2 nm	0.35 nm	0.7 nm
3nm	0.25 nm	0.52 nm	1.0 nm
4nm	0.35 nm	0.7 nm	1.4 nm

The following diagram illustrates the “abeam” position error.



Accurate position reporting will assist in responding assistance to your location if an abnormal situation occurs. We trust that the above joggers assist.

Safe and Happy Sailing
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MRNSW - Volunteers serving the safety of the boating community of NSW