

breakwater will be an over capping type, which interrupts the waves progress, but does not totally protect from wave penetration. These events are manageable and estimated as a once in 50 years possibility.

The breakwater core will be used as a construction causeway allowing land based equipment to perform the work. The greater part of the breakwater work involves winning the material as opposed to actual construction.

E. CYCLONE MOORINGS.

The extent of the cyclone problem in Australia's north and north west was emphasised when Cyclone Tracey struck Darwin in 1974. The most powerful cyclone to cross the Australian coast was Cyclone Vance in 1999, which passed near Dampier, destroying large parts of the towns of Onslow and Exmouth further to the south.

The problem is acute, particularly in the area between Exmouth and Port Hedland, which suffers cyclones of an intensity and frequency as high as anywhere in the world. The Mermaid Base is typically on cyclone alert three times per season. The season is November to April.

To date there have been three options available to vessel owners when a cyclone approaches:.

- Run to sea
- Take refuge with crew onboard, on a mooring in the most sheltered location available such as the Dampier Archipelago or the Monte Bello Islands.
- Construct a cyclone shelter.

There are serious personal safety and environmental considerations related to Options 1 and 2 and it is obvious that best practice universally adopted by large responsible Companies can be satisfied in this way.

Only Woodside at Dampier and BHP at Port Hedland have taken the step of building shelters which provides protection to 12 of the region's 60 vessels and this at very considerable cost.

Mermaid has undertaken significant engineering work on the placing of vessels on partially sheltered spread moorings, allowing the vessels to be secured near to shore and the crews demobilized to take care of their families and attend to household cyclone preparation.

Mermaid is taking a leadership role with a technical solution which will lead to wider adoption as vessel owners and the insurance industry fully value the arrangements. Mermaid will provide