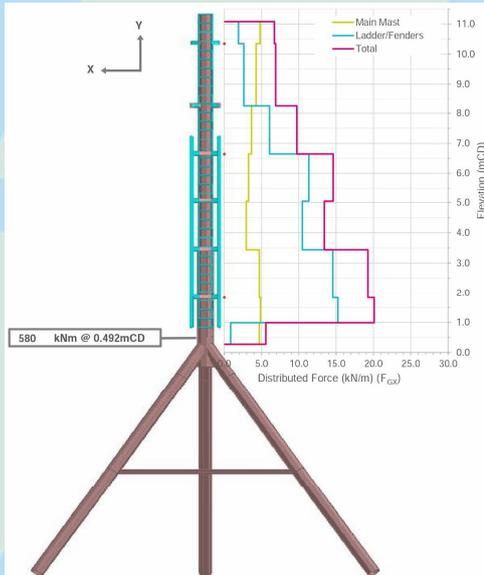


“Where will our knowledge take you?”

## Coastal and Maritime Structures

### Wave Forces



“ BMT JFA has extensive experience in wave force calculation for jetties and wharves in both cyclonic and non cyclonic conditions. ”

significant importance with water particle velocities and acceleration in wave-induced flows directly causing forces to act on the piles and wharf superstructure.

Transformation of waves from deepwater to shallow water increases the nonlinearity and complexity of wave-induced flows for coastal jetties and piers. Breaking waves in the surf zone may also cause significant increase of slamming loads on the coastal structures. Applying appropriate wave theory and an accurate calculation of wave forces on the jetties and decks are therefore crucial aspects of a robust functional design for these structures.

BMT JFA applies the latest advances in technology and research to provide accurate wave load estimates for the design of a range of coastal and maritime structures. BMT JFA’s in-house experience provides a full package of services, from metocean modelling and development of design wave conditions, through to optimisation of port layout.

#### Key Capabilities:

- Development of design wave conditions for nearshore jetties and wharves
- Wave load calculation on piles and decks
- Mooring load analysis
- Construction management and site supervision
- Conditions assessments of existing jetties/ wharves and asset management.

#### Related Projects:

- Gorgon, Barrow Island Pioneer MOF
- Cape Lambert 320MTPa upgrade
- Busselton Viewing Platform
- Esperance Tanker Jetty Refurbishment.

#### Services Offered:

- Wave transformation modelling
- Development of design wave conditions and wave load calculations for jetties, wharves and other coastal structures using appropriate nearshore wave theory and numerical modelling
- Mooring load analysis and structural design of bollards and fenders
- Design of boat ramps, finger jetties, fishing platforms
- Full range of marina design including development of layout and design of mooring pens and jetties
- Management of detailed structural design of wharves.

#### Software:

- PileLoad
- ACES.



Ongoing increases in ship size have dictated a demand for deeper water berths and therefore longer jetties. In many locations, construction of protective breakwaters for these jetties is not economically viable. Increasingly therefore, jetties are constructed without protection and have to be able to cope with wave forces acting directly upon them. The frequent use of pile supported coastal structures makes the interaction of waves and piles of