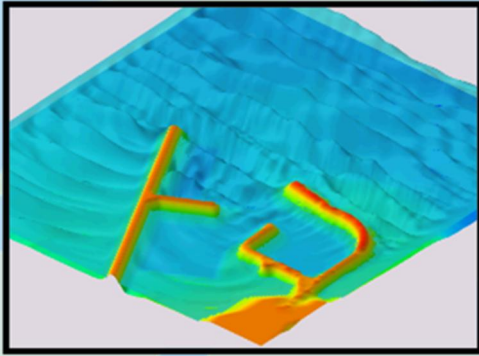


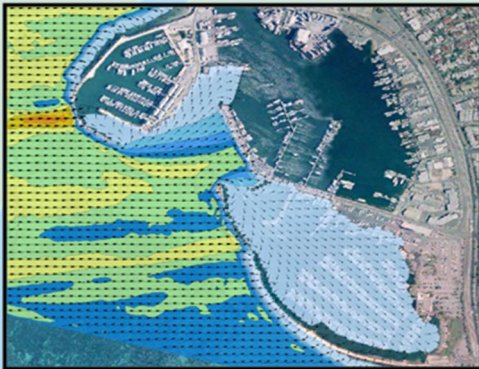
“Where will our knowledge take you?”

## Coastal Dynamics

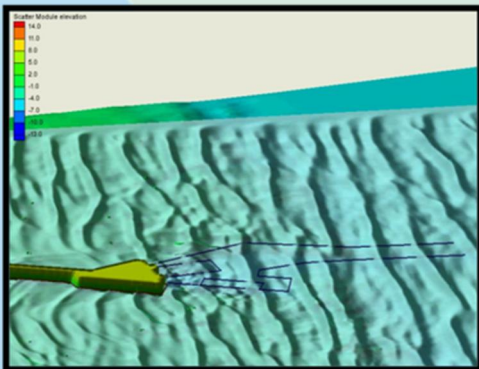
### Wave Attenuation Modelling in Harbours



“ An accurate assessment of the wave climate at any given project site is critical in optimising harbour layout and ensuring safe operating conditions for shiploading and other commercial and recreational activities. ”



Both wind generated and long period infra-gravity waves need to be accounted for in order to establish design conditions for breakwaters, piers, wharves, jetties and pontoons. Non-linear transformations of irregular short and long crested waves and diffraction and reflection from different structures are very complex processes. These need to be thoroughly understood to ensure that structures remain safe and operational throughout their design life. Wave modelling also assists in evaluating siltation rates and the impact that harbour structures may have on the adjacent coastline.



BMT JFA’s wave modelling expertise has been developed through wide application to a range of coastal developments, including port and harbours, wharves, jetties, marina and breakwaters. We have extensive experience in using the outputs from wave modelling to optimise port and harbour layout and to determine requirements for dredged basins and pocket berths. BMT JFA offer full range of wave modelling services alongside wave attenuation



studies, including offshore wave climate modelling, offshore to nearshore wave transformation and wave overtopping simulations.

#### Key Capabilities

- Wave modelling and establishment of design conditions
- Design of port and harbour layouts
- Marina design and pen configuration
- Management and implementation of metocean site investigations
- Supervision of long period wave modelling.

#### Related Project

- Oakajee Port Development
- Esperance Port Development
- Fremantle Sailing Boat Harbour
- Cape Lambert Tug Harbour
- Albany Port Development
- Gorgon Project Barrow Island

#### Services Offered

- Wave penetration & attenuation studies for ports, harbours and marinas
- Investigation of wave agitation resonance and seiching
- Offshore wave climate modelling and hindcasting
- Offshore to nearshore wave transformation modelling
- Provision of design wave conditions and optimisation of port and harbour layout.

#### Software

- BOUSS 2D
- CG WAVE.
- MIKE21 BW.