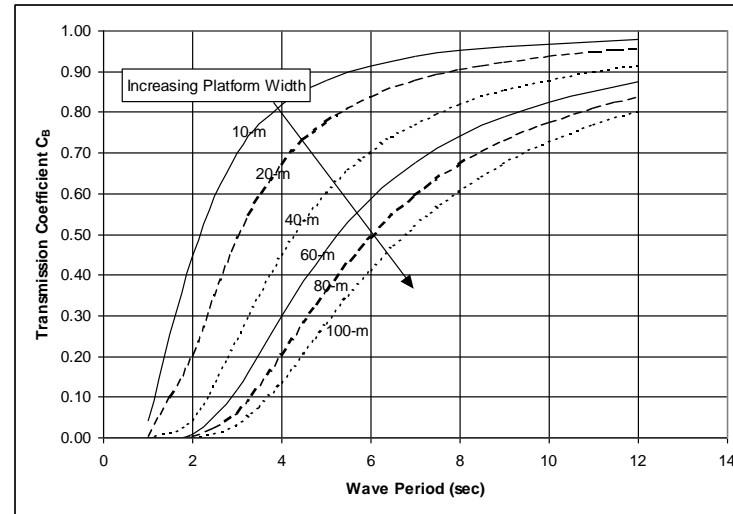


Reefs and Wave Transmission

Offshore or nearshore reefs occur along more than half of the Western Australian coast. They can substantially influence nearshore waves and therefore are important features in coastal hazard and coastal dynamics assessments.

Most WA coastal reef systems mark former shores, built through induration of calcareous sediment. In tropical waters, these can become a foundation for corals, with both live and relict corals contributing to the reef mass.

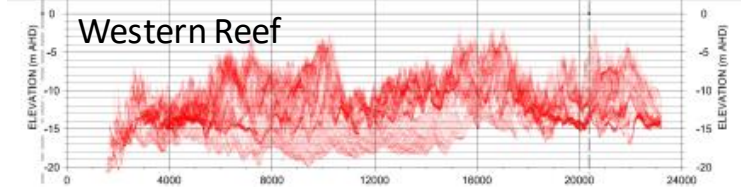
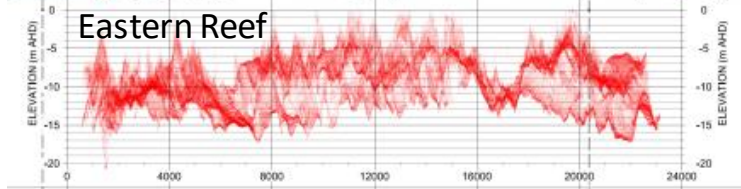
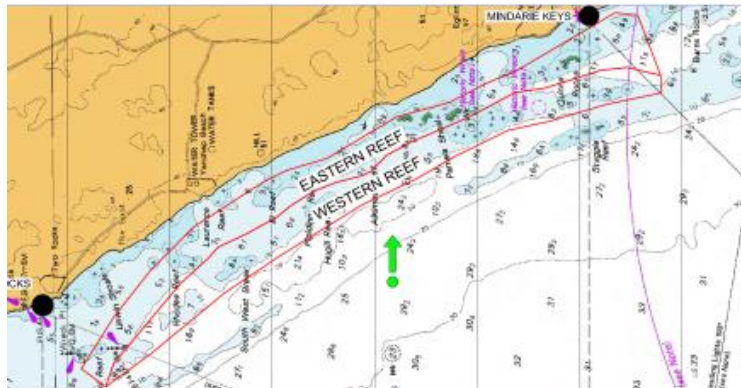
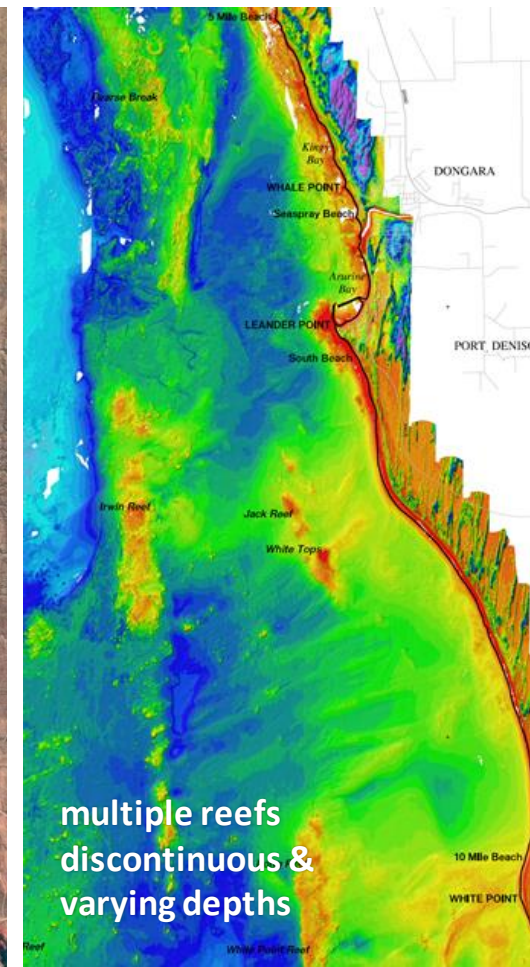
Wave energy transmission across reef systems can be influenced by the processes of friction, wave breaking, wave scatter, refraction and diffraction. Furthermore, wave energy can be transformed into wave setup, infragravity waves and wave-generated currents.



Factors determining the effect of wave transformation processes include:

- Reef Width
- Reef Depth
- Continuity
- Gap Alignment
- Roughness (Rugosity)
- Wave Height
- Wave Period
- Spectral Range
- Wave Direction
- Directional Scatter

Variation of offshore to nearshore wave ratios over time may suggest process importance.



A range of empirical models describe different aspects of wave response to reefs. These require understanding of the model origins and careful merging to represent behavioural transitions, particularly when considering a changing climate.

