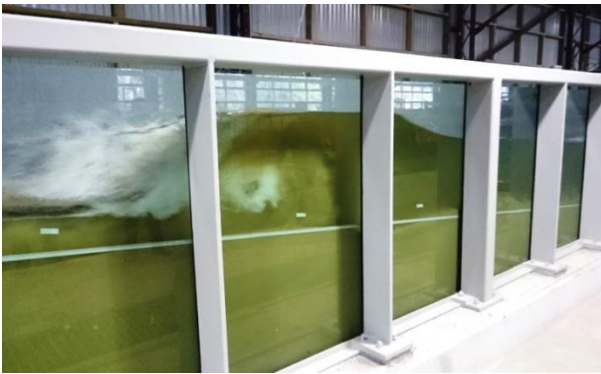




WRL's coastal physical modelling facilities are among the best in the Southern Hemisphere, and this combined with our large physical modelling team sees the facilities in continuous use year round. In 2015 WRL opened the largest and most sophisticated 2D wave flume facility in the Australia/Pacific region, reaching 44 m in length, 1.2 m in width and 1.6 m in depth.



1.2 m wave flume in action

The additional depth, length and large random wave generating capability provided by this unique facility makes it well suited for two-dimensional investigations of coastal processes as well as marine and coastal structures. This flume allows for rapid and accurate scale hydraulic modelling, and provides value-for-money as an investigation tool.



Physical model of reef overtopping during storm surge

Scale physical modelling in the form of wave tank testing remains the most widely accepted method for both concept and detailed design of coastal protection.

Physical modelling allows:

- Cost effective optimisation of coastal and marine structure designs
- Reduced project risk through more reliable assessment of design performance
- Confirmation of coastal protection design details, including armour size, cross sectional geometry and crest levels
- Rapid comparison of the performance of different protection options to support cost-benefit type analysis
- Assessment of wave and current loads on structures
- Assessment of safety through measurements of wave overtopping and currents
- Visualisation of the appearance of a coastal protection structure

## Flume Specifications

- 1.2 m wide x 44 m long x 1.6 m deep
- May be used as a wind tunnel with or without waves
- Site specific 2D bathymetric profiles can be modelled to accurately reproduce nearshore wave processes
- Typical model investigations include:
  - Analysis of breakwater/revetment armour stability
  - Run-up and overtopping
  - Wave loading and wave/structure interactions
  - Floating structure dynamics and response
  - Wave reduction screens and wave transmission characterisation for marinas
  - Wave overtopping safety assessment
  - Wind/wave interactions

