

Estimates of wave climate at potential wave energy test sites in Milford Haven

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Rationale

The objective of this project is to develop understanding of the wave climate around the entrance to the Haven, in order to ascertain its suitability for device testing and aid site selection. This will be important both to enable Bombora Wave Power to conduct their testing and to assist with the development of META (Marine Energy Test Area) in Milford Haven.

Methods

A nested wave model was set up using Swan covering areas from the North Atlantic down to a coastal scale at Milford Haven. This was validated against a range of wave buoys. Data from the Mid Channel Rocks wave radar was also utilized as a source of measured wave data close to the proposed sites.

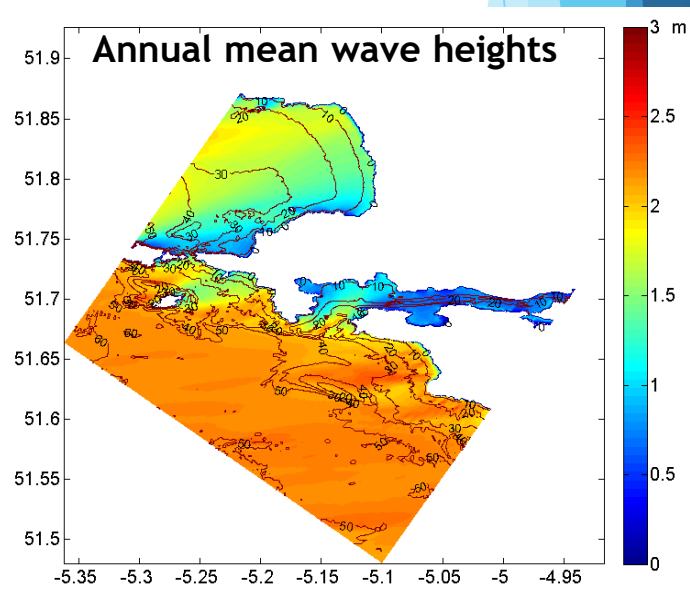
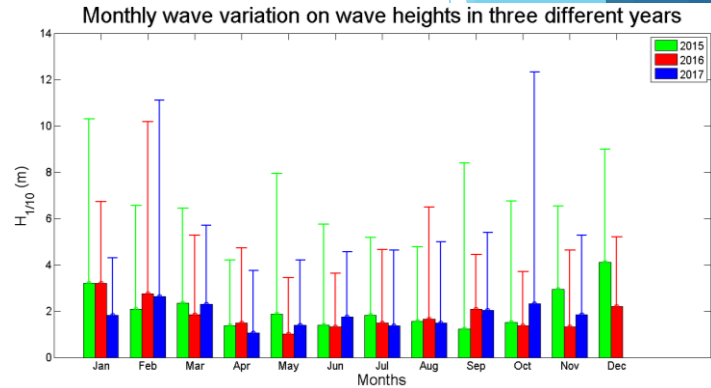
Results

Mean monthly wave heights at Mid Channel Rocks vary from 1.295m in summer to 3.149m in winter.

Validation of the numerical model shows good results against buoy data. Wave conditions at Freshwater West are shown to be more energetic than that at Marloes Beach and Newgale beach during the one-year simulation period. A very fine resolution wave model (grid spacing 50m) has been developed to provide higher resolution representation of this spatial variation.

Outcomes

The sites at Freshwater West and Dale Roads (small scale) were suggested as optimum test locations. MEW have now deployed wave buoys at this location to further understand the resource.



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