ASSESSING THE PERFORMANCE OF BOSCOMBE ARTIFICIAL SURFING REEF

Location: Boscombe, Bournemouth, UK
Project Dates: May 2010
Clients: Bournemouth Borough Council

Scope of Work:
- Wave refraction modelling over the measured reef bathymetry to examine wave focusing and breaking on the reef
- Surfer mounted Global Positioning System (GPS) data recorded during surfing sessions at the reef and the beaches next to Boscombe pier
- Tidal height predictions, providing estimates of water level on the reef during observations
- Observation of surfer numbers on the reef and pier beaches taken by Seafront Rangers.

PROJECT DESCRIPTION

This study involved a 6-month assessment of the performance of an artificial surfing reef installed at Boscombe beach in terms of recreational surfing quality. The reef was quantitatively assessed against specified design criterion and compared to conditions on the neighbouring beach alongside the existing pier at Boscombe. This was the first time that an assessment of the performance of an artificial surfing reef in terms of physical recreational surfing experience had been conducted. It was clear from the outset that this was to be a challenging task with no prior-established protocol. It was also evident that not all of the desirable measurements were practically realisable. Thus, the final assessment of the reef was a mixture of objective measurable evidence and more subjective expert assessment. Furthermore, it was recognised that the precise description of work required to achieve a success assessment of the reef had to be flexible and agreed by all parties, including the Council, the contractors (A.S.R.) and the University of Plymouth.

Below: Surfer tracks superimposed on contours of Wave height over water depth (Hb/hb). The light blue to green contours represent times when a surfer is riding the unbroken part of the wave. Yellow and orange zones represent broken waves.

Below: A steep plunging wave observed on the Boscombe artificial surfing reef. A curve fitting result is shown, measuring the vortex length to width ratio of the wave.