

The Mathematics and Physics of Body Surfing

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Abstract

Waves on the ocean are generated well away from any shoreline and travel under a prevailing wind towards a distant shore. These deep-water waves eventually become shallow-water waves and break near the shore creating a turbulent surf front of bubbles, foam and spray, encompassing secondary breaking and smaller splashing waves. Human surfers can propel themselves shorewards on these breakers or broken waves; the skill being termed body surfing.

This paper analyses the breaker and its surf front and their effects on the surfer endeavouring to ride them shorewards. Various body-surfing techniques will be discussed, so that further scientific knowledge of this recreational art can be obtained.

KEY WORDS: BODY SURFING; SURF ZONE; OCEAN WAVES