

An Overview of Rip Current Understanding

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Rip currents are of scientific and societal interest. The scientific interest arises, in part, due to the difficulty in prediction while the danger to swimmers results in the societal concern. Rip currents are known to increase with increasing wave height and irregularities in the surf zone, whether due to a channel eroded through a longshore bar or a longshore current deflected by a structure such as a groin. Rip currents are more likely to occur at low tide when flows through breaks in bars are enhanced.

Understanding of rip currents has been improved markedly through camera technology, field measurements, emphasis on records from lifeguards and improved knowledge of nearshore hydrodynamics especially the formalization of radiation stresses and the role of mass transport. Rudimentary equations have been developed for predicting the occurrence of rip currents; however their skill is far from perfect.

The goal of this paper is to present a state of the art review and to identify possible fruitful areas of future research to further enhance understanding of rip currents.