Observations of naturally occurring phenomena often give rise to ideas of how man may alter, control or redirect the forces of nature. Observation and explanation are the purpose of science, application of such phenomena that of engineering. Coastal geomorphologists have observed periodic shore parallel bars formed on mild sloping beaches on which plunging breakers occur. There has been speculation that once one such bar existed, others would form, propagating a bar field outward. Also, of interest to coastal scientists and engineers was the possibility that once the bar field formed, resonant and non-resonant reflections of surface waves propagating over the bar field would occur.

Several theories have been put forth as to the evolution of the observed bar fields. Evans (1940) suggested that the first bar is formed when a plunging breaker stirs up sediment on the bottom and the falling crest behind the breaker deposits the sediment behind the wave. It has been suggested by Carter, Liu, and Mei (1974) that this breakpoint bar will initiate reflection of incident wave energy seaward, setting up a standing wave pattern. Due to Lagrangian drift, causing sediment to converge at the nodes and diverge at the anti-nodes, additional bars may form. In addition to seaward growth, it will be pointed out in the present study that due to the possibility of a trapped resonant wave field shoreward of the barfield, the field may also grow shoreward, as observed by McSherry (1989). Hypothetically, the growth of the bar field is a self maintaining process, where, as the bar field grows, stronger reflection occurs causing additional growth. The initial phase of this growth has in fact been observed in laboratory studies by Davies and Heathershaw (1984).

The wavelength of the barfield on the bottom has a direct relationship with the relative strength of reflection of a surface wave of a particular frequency. As a scientific problem,