

POVERTY BAY/FLATS

How do sediments make the transition from the terrestrial to the marine environment?

Understanding the mechanisms that control the transfer of sediment across the land/sea interface is important because the delivery/dispersal mechanism determines where the sediment goes, at what rate, and at what frequencies. This interface constitutes the link between source and sink, and is the most dynamic and sensitive component of the entire dispersal system. It records the response to climatic, tectonic and anthropogenic forcings at a range of spatial and temporal scales. The interface is also highly relevant to society because sediment-associated substances (*e.g.*, carbon, nutrients and contaminants) are dispersed and sequestered by these same mechanisms.

The Waipaoa Sedimentary System is an ideal site to investigate these globally important mechanisms because it:

- has a loud, well-documented terrestrial signal (that is forced by clearly defined climatic, tectonic and anthropogenic drivers) from the uplands.
- has a confined littoral system (over last 7 kyr) in a subsiding basin which has experienced incremental increases in accommodation space
- has a well-constrained (both spatially and temporally) progradational record
- provides the opportunity to investigate a variety of dispersal mechanisms (such as the change from a braided to a meandering channel, and the importance of surface plumes and hyperpycnal flows) over time.

These attributes contrast with those of the PNG Focus Site, which is a tropical system that has a high floodplain trapping efficiency and a clinoform shelf deposit.