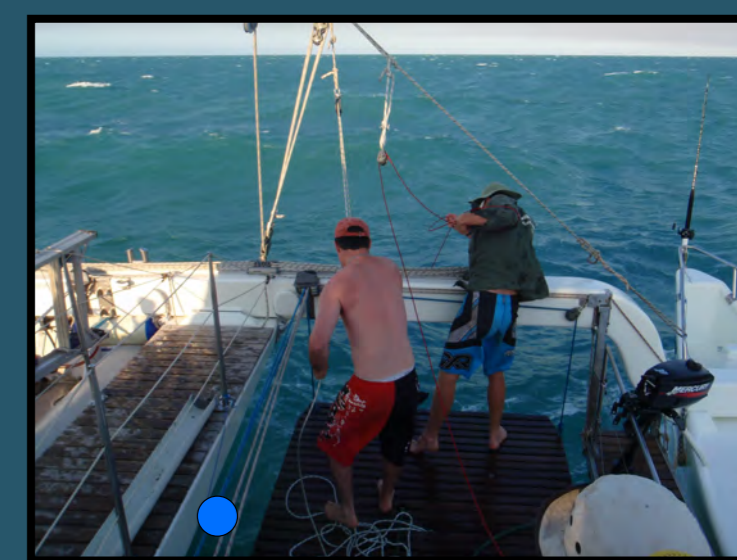


Coastal Erosion and Geochemistry

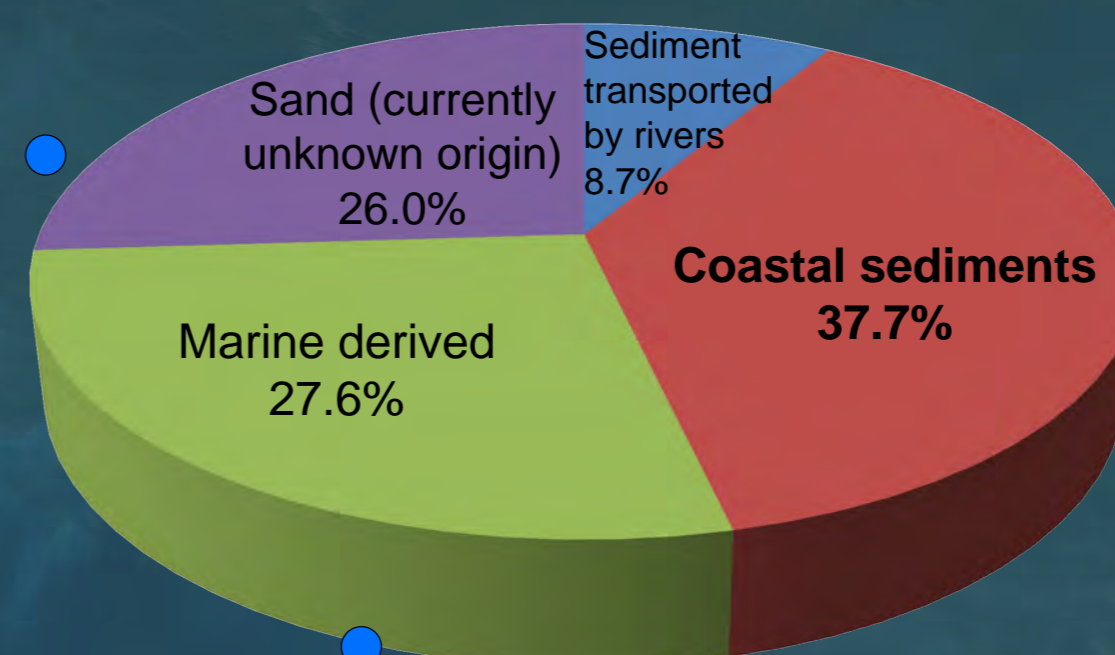
What's Eating the Coast?

Sediments that have accumulated on the bottom of Princess Charlotte Bay (PCB) for thousands of years were sampled at the locations marked with blue circles (43 samples).

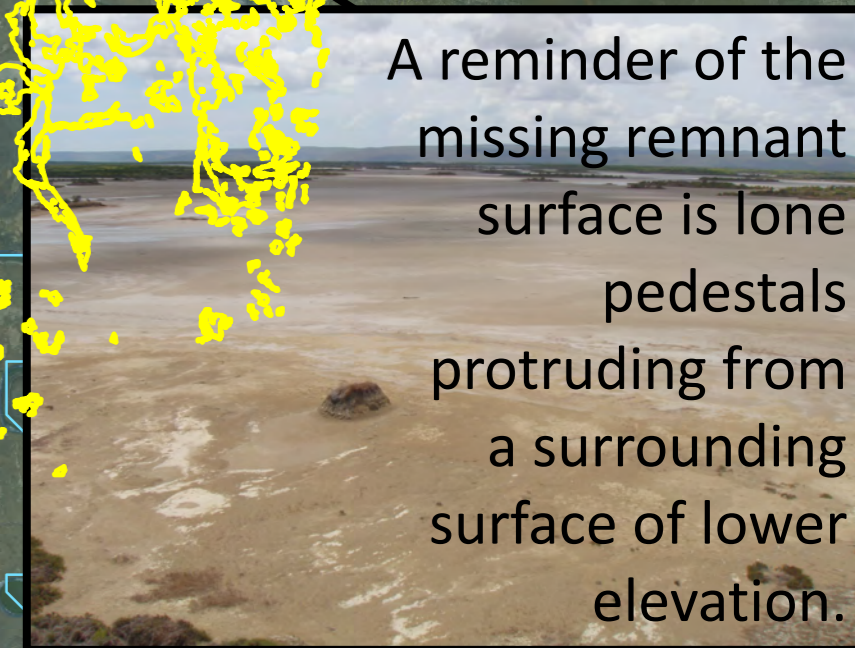


Terrestrial sediment samples were taken from river water, floodplains and mud flats.

An analysis of the geochemistry of the terrestrial and bay sediments revealed that the sediment in the bay samples were composed of;



Areas in yellow have high reflectance in satellite imagery and might be eroded surfaces.



Dating of remnant surface indicates the coastal erosion started after ~ 500 BP. Sea level has lowered approximately 1m since the mid-Holocene (last 5 or 6 thousand years). The coastal plain has been prograding and accreting over some of that time, storing sediment as a system of coastal floodplains interspersed with chenier (shell) ridges.

- But it would appear that something has changed the sediment dynamics at the coast. The exact cause of this change is unknown at this time, but could involve;
- variation of sediment inputs to the coast (marine or terrestrial),
 - changing currents in PCB,
 - the perturbation of a high magnitude cyclone or cyclones (Mahina 1899?),
 - variation in the strength of the monsoon over centuries,
 - variation in the degree of dry season aeolian deflation of the coastal floodplain,
 - salt harvesting on the coastal salt flats (known to have occurred throughout part of the 1900s),
 - the development of the Bizant distributary channel, etc.

These and other possible influences on the coastal sediment dynamics probably have interdependent relationships. But critical to the development of the coast and probably the erosion seen today is the lowering of sea level that occurred since the mid-Holocene.

