Merimbula Lake entrance sediment study

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UNSW

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Project details

Report title	Merimbula Lake entrance sediment study
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Figure 4 Long-term shoreline variability of the entrance bar sand spit (3 month rolling average)

As shown in Figure 4, the entrance bar sand spit has a cyclic history of shoal blowout with no apparent long term trend in frequency, duration or severity. Generally returning to its long term position from eroded states within a 6 month window, the sand spit is largely a stable morphological feature in a state of dynamic equilibrium between forcing oceanic wave conditions and returniur-69(be)4() g0 G[7(d94 Tm0 g0 G[t)-10(h

Figure 8

2.5 2020 entrance bar spit erosion

Based on observations of the Merimbula Lake entrance bar sand spit outlined in Section 2.1, the sustained period of sand spit erosion and recovery in 2019-2020 was the largest event recorded over the 35 year satellite imagery record. Based on satellite imagery and observed tidal range in bottom Merimbula Lake, the peak eroded state during this period occurred between May and July 2020. Consulting the NSW Beach Profile Database (http://www.nswbpd.wrl.unsw.edu.au), measurements of shoreline geomorphology for this period coincide with the peak eroded state and data is available at transects along Merimbula Main Beach for 19 June 2020. Comparing the cross-shore width of the sand spit for this date with historical profiles pre-dating satellite imagery, two additional significant erosive events were noted in July 1962 and June 1972. The magnitude of the erosion on these dates however was smaller than that of the June 2020 event.

With erosion of the entrance bar sand spit first evident in the records from June 2019, the spit width reduced and remained sta

A1.2 Historic aerial imagery

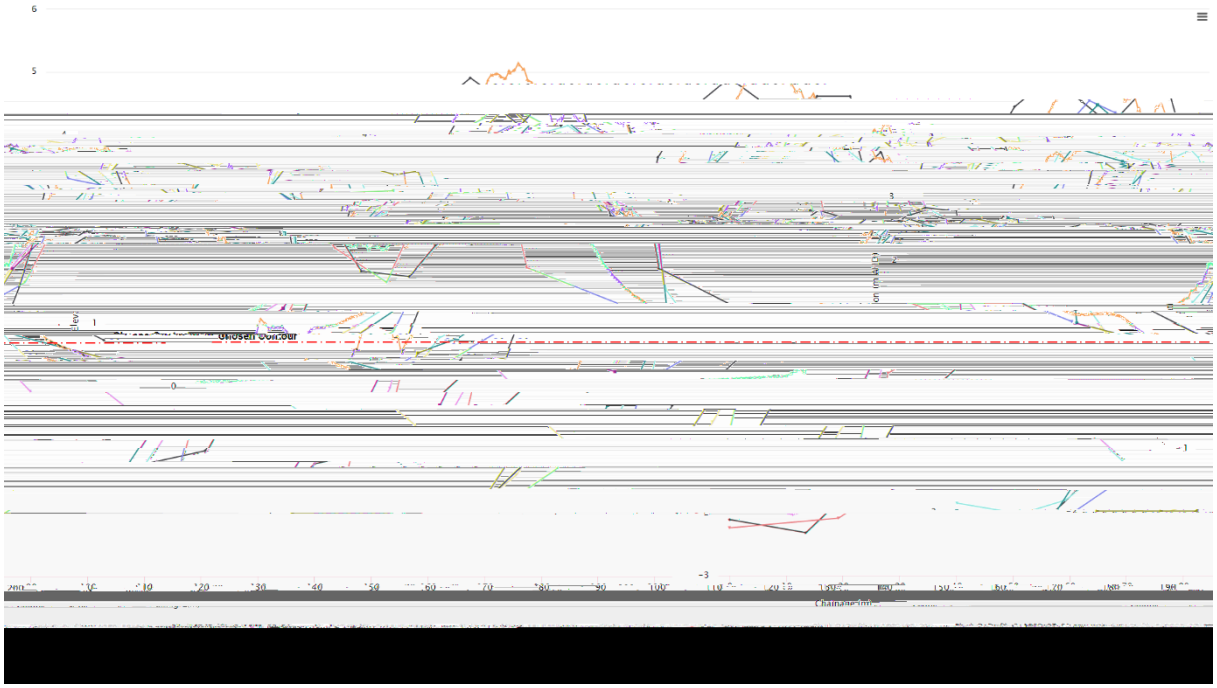
Estuary timeseries of Merimbula Lake entrance bar since 1948

https://www.youtube.com/watch?v=1Uni5JrWv5U

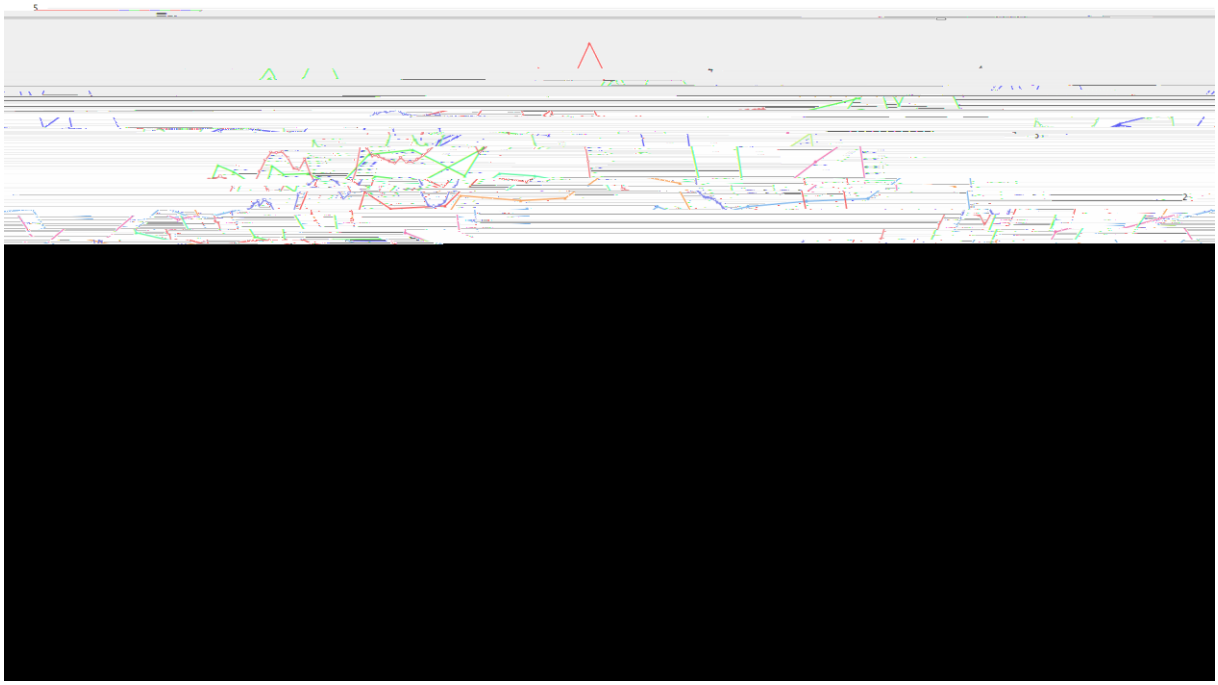
A1.3 NSW Photogrammetry Beach Profile Database

http://www.nswbpd.wrl.unsw.edu.au/photogrammetry/nsw/

A-4 Extracted transect locations



A-5 Block Q, Profile 3 Historic eroded sand spit shoreline positions



A-6 Block Q, Profile 4 Historic eroded sand spit shoreline positions

A-7 Block Q, Profile 5 Historic eroded sand spit shoreline positions

A2 Multi-decadal shoreline variability and ENSO

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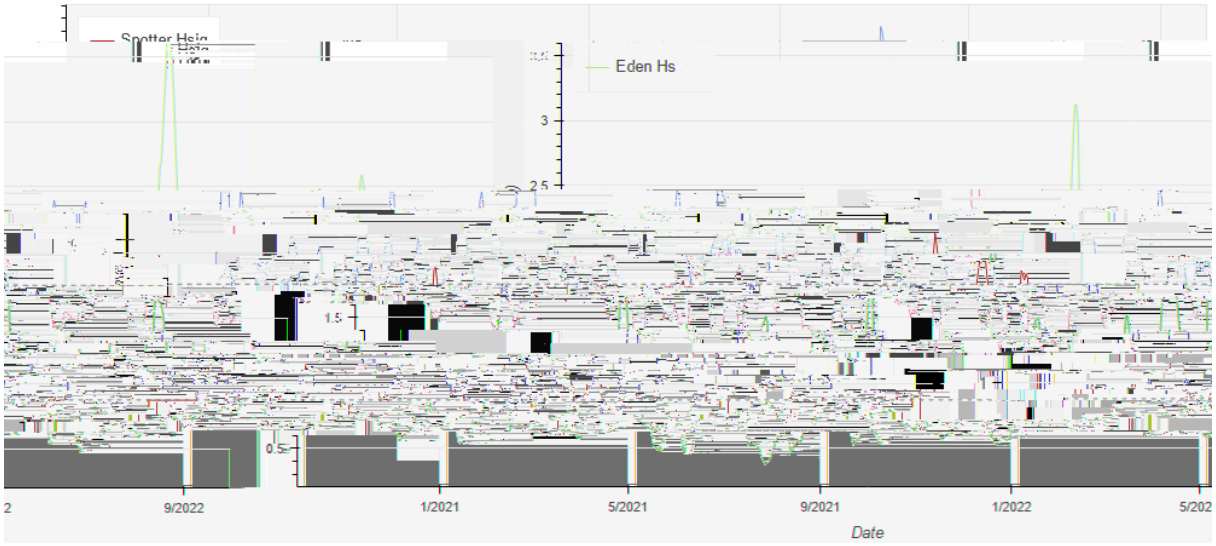
A-9 Long term shoreline variability vs ENSO at Pambula Beach

A-11 Significant wave height (annual rolling average) at Eden wave buoy timeseries (Source: MHL, 2022)

A-12 Wave direction (ann(

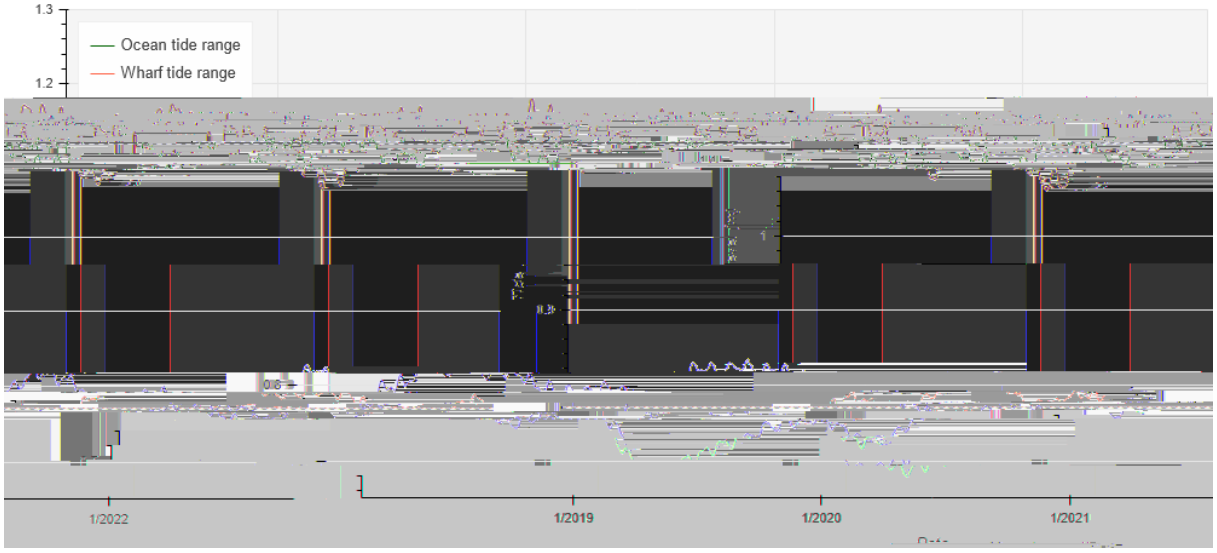


A-13 Significant wave height (7 day rolling average) at Eden wave buoy and Merimbula Bay nearshore Spotter buoy (Source: MHL, 2022)

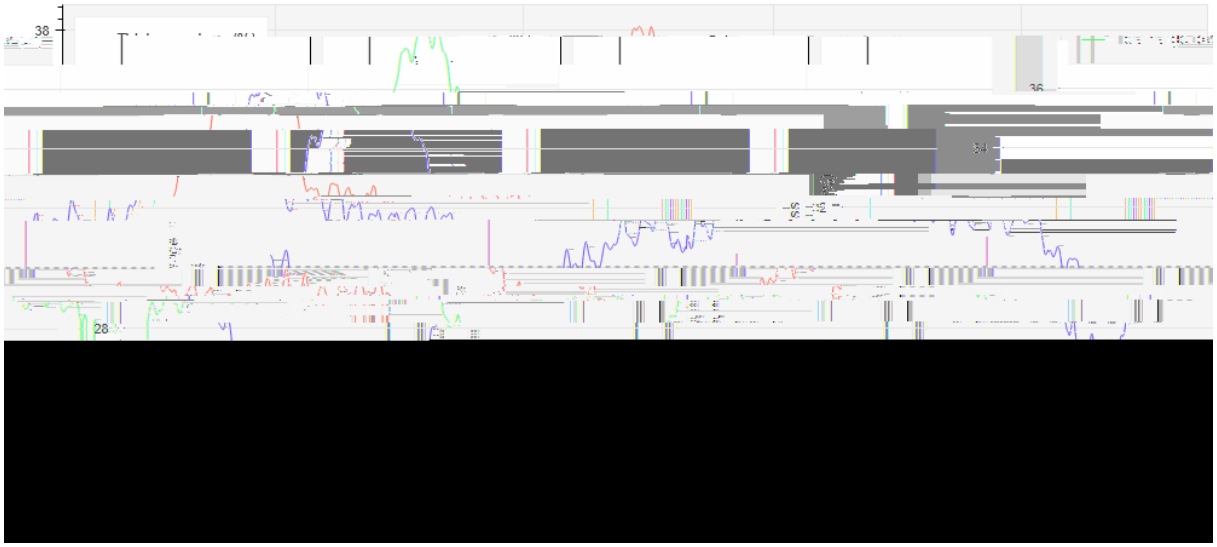
A-14 Significant wave height probability density histogram at Eden and Merimbula Bay nearshore Spotter buoy highlighting have hei (Source: MHL, 2022; DPE 2022

A-15 Wave direction (7 day

A3.2 Water level data



A-17 Oceanic and Merimbula Lake tidal range timeseries (3 month rolling average) (Source: MHL, 2022)



A-18 Tidal head loss between oceanic and Merimbula Lake tidal gauge (3 month rolling average

A3.3 Rainfall data

A-19 Daily rainfall data at Merimbula airport (source: BOM, 2022)