

The Frontline News

Coastal Management in Shoalhaven

For every moment the sea is peace and relief, there is another when it shivers and stirs to become chaos. it's just as ready to claim as it is to offer. - TIM WINTON

Shoalhaven
City Council

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THE BIGGEST WAVE ON RECORD!

Although the June East Coast Low (ECL) wasn't extreme in terms of storm peak significance, it did break a record.

The Eden wave buoy recorded an individual wave height of 17.7 metres. This is the largest wave ever recorded off the NSW coast since records began around 1976. It's 2.8m higher than the previous largest wave of 14.9m that was recorded off Sydney on 21 April, 2015.

When the monster wave reached the shore it's estimated it would have been about 20 metres high.

What else do we know about the ECL?

- The low pressure system developed off the mid-north coast on Saturday afternoon (June 4), tracked offshore past Sydney and continued towards the Victorian border on Monday & Tuesday
- It hit the Shoalhaven coast on Saturday night from the E and ENE which is unusual for storm wave direction
- It coincided with the winter solstice Spring tide of 1.29m
- In Eurobodalla the Tathra Wharf was knocked of its pylons and, in Bega Shire, about 100 metres of the wood chip mill jetty was washed away. Both facilities are exposed to the north
- As with all ECLs the level of the ocean was raised. This is because it's a low pressure system and so there's less air pressure pushing down onto the surface. This is known as 'storm surge' and in this case it added 'a positive tidal residual' of up to +0.34m
- Interestingly, the storm demand (volume of sand removed from a beach) was higher than expected in some sheltered areas

The combination of tide, storm surge and wave height turned this ECL into a very damaging storm.

What happened on Shoalhaven beaches?

Following the storm, emergency responses were implemented at a cost of approximately \$35,000. Estimates of longer term remediation and protection measures are being investigated with costs estimated at several million dollars. Implementation of these works will need to be carefully prioritised.

A summary of the worst affected coastal & estuary areas follows.

Currarong Beach was the worst effected, partly because it faces north.

- Approximately 20,000 cubic metres of sand was lost from the beach with the dune face receding 6-8 m, leaving a 3-4 metre high sand cliff
- 6 beach access ways were destroyed. Because the dune face at Currarong Beach was steep, accesses were constructed steps and stairs.
- One staircase costs approximately \$25,000, so not all six can be replaced.



One of the staircases destroyed at Currarong.



Imprints in the sand—all that was left of a viewing platform and staircase at the eastern end of Currarong Beach.

Ulladulla Harbour

The beach was eroded and a picnic table had to be removed. The rock wall that protects the footpath and highway has been damaged.

It's hoped that the RMS will contribute to shoreline protection work.



Lake Tabourie

With ocean inundation, king tide and flooding combined, the 80m boardwalk was lifted, broken and damaged beyond repair. The damaged boardwalk was removed and Council is now liaising with the Lake Tabourie community about whether to replace the boardwalk or not.

Mollymook Beach

Prior to the June ECL, council had been seeking advice from coastal engineering consultants regarding shoreline protection assets at South Mollymook. The gabion rock wall protects the Golf Club, major sewer infrastructure and a walkway. The adjacent sandstone sea wall protects the road and walkway. Both assets are approaching the end of their useful life - which the ECL shortened further. Preliminary designs and costings indicate that replacing and upgrading shoreline protection in this precinct, (Golf Club through to the Surf Club) may approach \$3.5million.



Voids in the sea wall have opened further (above) and a corner section collapsed (below) during the ECL.



Each time the gabions are exposed, further damage is done.



Shoalhaven Heads

The entrance of the Shoalhaven River opened naturally at the 'dry notch' (low point in the dune) maintained by Council. As a result during the ECL, ocean swell with the high tide entered the estuary. This, combined with river flooding, caused erosion along the River Road foreshore where four access points were damaged.

The beach also experienced significant storm bite and beach access points were damaged.

Council has completed tree management works to make the area safe and is seeking coastal engineering advice regarding longer term management options.



Culburra Beach

Beach access ways were damaged along the entire beach with some rock outcrops uncovered.

Short term works to repair beach access ways are underway and longer term works will be assessed.



Greenwell Point Foreshore

Erosion of shoreline protection and undermining of the shared path demonstrates how reclaimed land is especially vulnerable to tide and combined flood and ocean wave impacts.

Vincentia

Storm water outlets at Collingwood Beach were eroded and sections of the shared pathway suffered damage.

Repairs to the path and relocation of picnic tables and seats is required.



Where will the money come from?

- The June 2016 ECL has been declared a natural disaster.
- This provides access to the State and Federal Government's Natural Disaster Relief and Recovery Arrangements which provides funds for emergency response work and restoration of eligible assets e.g. road infrastructure, bridges, footpaths, culverts, levees and stormwater infrastructure.
- It doesn't include foreshore erosion in natural areas, parks and reserves or Council staff normal hours costs.
- It does include costs associated with contractors, materials and staff overtime
- To cover ineligible costs, Council has approved the reallocation of \$500,000 for coastal management priority works.
- Council will apply to the NSW Government for matching dollars to progress works at south Mollmook, Currarong and Shoalhaven Heads.

NOTE: 'Actions of the sea' such as coastal erosion, king tides and storm surges are typically not covered by insurance.

Watch 'STORMAGEDDON' ON ABC IVIEW





Managing our beaches in a stormy world

- Council manages 40 of Shoalhaven's 109 beaches
- At each beach there are a number of beach access ways - a total of about 220. Council inherited most beach accesses from the Beach Improvement Program; implemented in the 1980s by the state government to repair beaches following the devastating storms of the 1970s. Works included the construction of fenced, revegetated dune 'paddocks' with access ways in between them. The result is that some areas are over serviced with access ways. For example, at some beaches there is an access every 50 to 60 metres. This is considered unnecessary, unaffordable and also compromises dune resilience.
- The access ways are a mix of sand tracks, back filled steps, constructed staircases, boardwalks and concrete ramps (examples shown). All require ongoing maintenance (including regular vegetation pruning) to keep them safe and useable.
- Many of the assets (boardwalks, staircases etc), having been constructed in the 80s and 90s, are now approaching the end of their useful lives; so although they may not have been damaged in this last ECL, they are still in need of major repair or replacement.



So Council is faced with some major budgetary challenges, to be repeated with future coastal storms and rainfall events.

With many beach accesses being damaged and closed as a result of the June ECL, we now have the opportunity to apply some adaptive strategies to the management of our coastal assets. These are to retreat, relocate and/or reduce the number of assets.

By taking up this post-storm opportunity to 'retire' some assets, Council can then channel savings towards upgrading the retained assets.

This approach is highlighted in Council's adopted Coastal and Estuary Asset Management Plan - the Severe Storm Damage Response statement outlines post storm operational actions.

- Citywide storm damage assessed
- Beach reshaping to essential access ways
- Reduced numbers of access ways to be reconstructed and maintained
- Beach stabilisation and rehabilitation to be assessed under Shoalhaven Coastal Zone Management Plan.

At beaches where this approach is now appropriate, discussion and consultation will be undertaken by Council staff with the affected communities.



For further information contact Penelope Lumb, penelope.lumb@shoalhaven.nsw.gov.au 4429 3623.