



 SANDS OF TIME: Coastal ecologist Ian Dyson at West Beach where the embankment has been severely eroded after recent storms. Picture: MICHAEL MARSCHALL.

SA News

# Expert says key Adelaide beaches could disappear within a decade because of rising sea levels and erosion

Thomas Conlin, Sunday Mail (SA)

July 24, 2016 12:05am

 Subscriber only

THEY are among the most revered beaches in Australia — popular for their long, sandy stretches and calm gulf waters — but the Adelaide coastline is facing an uncertain future.

One of the state's premier tourist attractions is at risk of disappearing within a decade because of rising sea levels and erosion, leaving just three 400m-long "pocket" beaches.

That's the view of geologist and coastal expert Dr Ian Dyson, who says beaches at Glenelg, Henley Beach and Semaphore will be all that remains of the metropolitan coast beyond 2026.

He predicts the rest of the coastline will become a rocky foreshore, like Hallett Cove, and will be lined by rock walls.

"At an average tide you won't be able to walk along the beach," he said. "I'm concerned we've reached the point where it goes from coastal protection and maintaining beaches to property protection."

# COASTLINES IN CRISIS

Beaches north of **SEMAPHORE** would be the last sand-covered beaches but, without continual replenishment from the south, would also become rocky.

The beach just north of the **SEMAPHORE PARK** breakwater has suffered from erosion because of northward-moving sand being prevented from reaching it.

**TENNYSON** has also received more sand from southern beaches and still has a healthy dune system to replenish the beach.

Sand levels at **GRANGE** have increased in recent times as more sand is pushed north, however once it is without supply from the south, the sand would be lost within ten years.

**HENLEY BEACH** has sustained severe damage from recent storms, uncovering old coastal walls that residents say have been buried for at least 50 years.

**WEST BEACH** requires sand replenishment because sand is blocked by the Adelaide Shores boat harbour and breakwater. Sand is also mined from the northern end of the beach near the River Torrens outlet.

Rocks have been exposed below the sand at **GLENELG NORTH** and the rock wall has been damaged by recent storms despite regular sand carting. The Holdfast Shores development prevents sand from replenishing the beach.



Surf lifesaving clubs, councillors and coastal residents have shared fears about Adelaide's beaches. But the State Government's Coastal Protection Board says sand-replenishment programs are working, despite rising sea levels making it more difficult to retain beaches.



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**GLENELG** is likely to be protected as one of the remaining "pocket beaches" according to Dr Dyson, however Glenelg South would be lost.

Diminishing sand coverage and dune erosion at **BRIGHTON** would increase once sand movement from Seaclyff slows. Rock walled areas of the coast already have very little beach. Dr Dyson predicts the sand will be lost in five years.

**KINGSTON PARK** and **SEACLIFF** beaches face the threat of losing sand next, if sand pumping and carting cannot keep pace with longshore drift, as it is pushed north.

**HALLETT COVE** beach is a rocky foreshore but was a sandy beach in the 1970s. Dr Dyson blames ill-considered development and the construction of the O'Sullivan Beach marina for the degradation.

Heavy storms on May 9 and July 13 have highlighted problems, cutting back sand dunes by up to 7m, leaving walkways in disrepair and threatening coastal infrastructure.

Dr Dyson said several locations had been left exposed to the full effect of waves and winter storms because of a gradual lowering of the seabed and beach level.

Predominant wave energy hitting beaches from the southwest naturally shifts sand in a

northerly direction along the coastline. But a \$5.7 million-a-year Adelaide's Living Beaches strategy, to pump and truck sand back to the south, has been labelled a failure by Dr Dyson.

He was concerned the State Government would concede the strategy was not working and they would line the entire coast with rock walls.

Dr Dyson said retaining beaches had become a losing battle without angled breakwaters, or groynes, at the southern end of erosion hot spots to slow sand movement.

“You're just going to have no dry beach from Kingston Park up to almost Henley and you'll have a pocket at Glenelg, you'll have a pocket at Henley and the third one, I think, will probably be Semaphore,” Dr Dyson told the *Sunday Mail*.



📷 BEFORE — JUNE 15: An aerial view of West Beach, near the Adelaide Shores Caravan Park, with dumped beach sand to replenish the eroded foreshore. Picture: Tait Schmaal.

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“Seacliff will be the next Hallett Cove and it's going to spread northward from there.”

The 20-year Adelaide's Living Beaches strategy was launched in 2005 and originally included a sand pipeline along the metro coast but budget constraints meant only two

sections — one at West Beach and another between Glenelg and Kingston Park — were built.

It spent \$1 million trucking sand and \$2.25 million pumping sand last financial year.

“It’s been under-engineered and I think the pumping, that’s what Coast Protection Board has hung everything on, hasn’t been able to keep up,” Dr Dyson said. “Trucking is more efficient but residents don’t like the rumble of trucks along The Esplanade or the beach.”

Environment Department coastal programs leader James Guy last month told Charles Sturt Council more funding would be needed to maintain Adelaide’s sandy coastline.

“There’s going to need to be some harder questions answered,” he said. “How much as a society are we prepared to invest in having a full sandy beach from Port Adelaide to Marino Rocks?”



📷 AFTER — JULY 15: Looking south along West Beach towards Glenelg. Recent storms and high tides have washed away thousands of tonnes of soil.

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The department refused a request to interview Mr Guy but, in an emailed statement, he said alternative management options needed to be considered for the next plan in 2025.

“Ongoing sea level rise will make it more difficult to retain sand along the coast,” Mr Guy said.

“By the time we get to the end of the current Adelaide’s Living Beaches Strategy in the year 2025, we will need to have completed the technical investigations and worked through alternative management options with the community.”

He said dunes built up by sand carting and pumping in previous years had acted as a buffer this winter.

“Large amounts of sand were eroded from metropolitan beaches but damage to infrastructure was minor compared to historical storms of lesser magnitude,” he said.

More than 70,000 cubic metres of sand has been dumped at West Beach since the May 9 storms, compared with 96,000 cubic metres in the 2014-15 financial year.

West Beach Surf Life Saving Club president Peter Zuill said the state of its beach had been getting progressively worse.

“The damage has impacted our ramps to the beach, so if there’s an emergency we would struggle to launch rescue equipment but luckily we haven’t had to do that yet,” he said.

“It’s definitely got worse over the past 10 years to the extent that there’s no real beach in front of the surf club anymore.”

The club is working on plans for a new clubroom but may be forced to move to a new location because of the erosion.

Seacliff Surf Life Saving Club president Andrew Chandler said sand pumping had kept pace with erosion so far.

“At this time of year a reasonable bit (of sand) has been pulled out but our biggest issue is that when it’s pulled away it does start uncovering a lot of rocks,” he said.

Charles Sturt Council needs to find \$1.5 million to replace 200m of storm-damaged rock wall at West Beach.

It has called on the State Government to fund a \$5.5 million offshore breakwater parallel to West Beach, similar to the one at Semaphore Park.

The Environment Department is preparing a 10-year spending program for coastal projects, which is expected to be complete in December.

Deputy mayor and Metropolitan Seaside Councils Committee chairman Robert Randall said: “The breakwater at Semaphore (Park) was a trial and it’s worked reasonably well ... it demonstrates that a parallel wall can be used to collect sand or slow the sand drift down.”

Western Adelaide Coastal Residents Association president Jim Douglas has called for more investigation before a breakwater is considered.

“What we’ll end up with is exactly what (Dr Dyson) is talking about — we’ll have a few pockets of sand,” he said.

— **Thomas Conlin is a journalist on Messenger’s Weekly Times**

## **MEET THE EXPERT**

Dr Ian Dyson is a coastal geologist, consultant and independent researcher focusing on marine environments. His PhD in marine geology investigated the interplay between sand supply and sea-level change and the effect of large storms on the marine environment.

Dr Dyson has spent much of the past eight years researching the nature of coastal erosion, sand loss and recovery, and the effect of breakwaters on beaches in bays with headlands.

He has travelled across Australia to study various beaches including Waitpinga near Victor Harbor, Durras Beach on the NSW south coast, and Swansea on Tasmania’s east coast.

His research has led to the development of a plan to protect Adelaide’s beaches.

Dr Dyson’s plan for groynes — which could be constructed of geo-textile bags just below the high water level — is designed to restore beaches and minimise sand loss, making pumping more effective.

He has presented the plan to Surf Life Saving SA, the Metropolitan Seaside Councils Committee and the parliamentary Environment, Resources and Development Committee.

His past projects have included examining the nature of contamination in the Onkaparinga estuary, which led to the decommissioning of effluent ponds at Noarlunga.



 Coastal ecologist Ian Dyson at West Beach.

