RESTLESS SHORES

Understanding Carlsbad's shifting sands.

WRITTEN BY ASHLEY GULDEN

A surfer studies the eroding Carlsbad beach (photo by Bryan Snyder).

photo courtesy of Carlsbad Village Association

Anyone pausing along Carlsbad's seawall this holiday season may be feeling less than jolly upon seeing the aftermath of recent climatic events. A palpable sense of uncertainty lingers over the stripped shoreline that was overflowing with sand just months ago. 2026 has forced us to confront the raw, untamable power of Mother Nature, a restless spirit that creates and destroys with equal indifference. Between headlines of disappearing sands, crumbling bluffs and the threats of El Niño, it can feel as though the golden shorelines we love are slipping away.

But is all hope lost? Not quite.

Long before Carlsbad Boulevard cruised smoothly along the coast, Pacific winter swells routinely pulled sand offshore, and gentler summer waves nudged it back. Beaches ebbed and flowed with the tides, seasons and weather, while inland rivers and creeks carried sediment to the sea to replenish the shore, creating a cyclical cadence. Change has always been the coast's natural rhythm, and it is normal for beaches to fluctuate in sand levels, especially during years with extreme weather.

Ryan Anderson, Ph.D., associate professor of anthropology at Santa Clara University, has studied Carlsbad's coast and notes that changing coastlines result from natural and human-made forces throughout history.

"When large surf and high tides combine, it's not surprising to see this kind of sand loss at a place like Tamarack," he says. "That's because the big sandy beaches there are not natural. They are the result of human intervention via sand replenishment. The sand there is actually eroding away all the time, day after day. I think the shocking thing, for many people, is seeing it happen all at once."

Anderson adds that as Carlsbad and its neighboring cities grew into thriving seaside communities, development began to disrupt the natural cycle.

"The erosion problems we're seeing at Tamarack are down the line from earlier decisions and changes from the past. Dams, jetties, seawalls. These things have impacts. There are reasons why sand doesn't stay on the beach at Tamarack," Anderson explains. "Tamarack has been shaped by shoreline changes since the early 1900s, including construction of the highway in the 1910s, damming of rivers upcoast in the 1920s and installation of two jetties in the 1950s...among other factors."


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Carlsbad also sits within a 50-mile-long littoral zone stretching from Dana Point to La Jolla, where waves and currents move sediment along the shore in a process known as longshore drift. Sand was once thought to travel strictly north to south, but recent studies show that lagoons, rivers and structures divide the zone into sub-cells that push currents in several directions, making sand movement far more complex than we initially thought and natural sand disappearance more common than anticipated.

Today's wide beaches were made possible by man, not nature. Regular dredging of Agua Hedionda Lagoon began in the 1950s, followed years later by dredging of Batiquitos Lagoon and offshore deposits, all helping to replenish the shoreline. In 2025 alone, roughly 320,000 cubic yards of sand, which is equivalent to about 98 Olympic-sized swimming pools, were dredged from Agua Hedionda's outer basin between the railroad trestle and Carlsbad Boulevard and spread along the beach.

Despite these replenishment efforts, the ocean reclaimed much of that dredged sand over the past summer and fall. A rapid succession of intense south swells, driven by multiple hurricanes and king tides, accelerated sand movement. Decades-old sections of the historic seawall, including stairs that had been buried for years, reappeared. Lifeguard towers were hastily relocated, and Tamarack State Beach's parking lot closed after high surf tossed rocks over the revetment and broke up the asphalt closest to the water.

Farther south, the City of Carlsbad officially declared an emergency in September regarding a crack found in the asphalt along Carlsbad Boulevard, better known as Highway 101, near Las Encinas Creek. This declaration cut through administrative red tape to expedite stabilization, extending the rock revetment by 192 feet to protect our iconic roadway.

Amid the dizzying amount of news coverage, social media videos and conversations held in local surf spots, the question often arises: "What can be done?" Navigating these challenges begins with untangling a complex web of jurisdiction. Sarah Lemons from the City of Carlsbad's Communication and Engagement Department points out a vital distinction.

"While we have 7 miles of coastline, the city controls only about 1 mile of that beach," she says. "The other 6 miles are owned and managed by the State of California through the State Parks. The city's beach runs from just north of Oak Avenue to the Oceanside border. Most of the beach south of Pine Street to the Encinitas border is state property, with the exception of a small section of Terramar between Cerezo Drive and Cannon Road."

Comparatively, Oceanside owns and manages most of its coastline, while Encinitas has a fairly even split between state and city control, with authority granted to manage the state beaches. There are limits to what the city and the state can do, and their timelines often differ from the public's desired time frames.


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It is evident that emotions are churning as much as the waters this winter, especially with El Niño threatening increased rainfall, higher sea levels and erosion. Historically, the phenomenon was first observed by fishermen off the coast of South America, who noticed unusually warm water in the Pacific Ocean caused by shifts in the trade winds. This weather occurrence was called El Niño, meaning "The Little Boy," after its arrival around Christmas, and it appears irregularly every two to seven years. Despite its docile name, El Niño can cause destructive flooding and erosion.

What makes El Niño unsettling is that predictions can be made about its severity, but its exact strength remains undetermined until it strikes. The city is wasting no time:

"Our approach is to actively monitor conditions, continue our preparations for the upcoming 'wetter' storm season, including the possibility of a strong El Niño and take advantage of feasible opportunities to put sand back on beaches in Carlsbad in the short term," says Lemons. "At the same time, we continue working with regional partners on longer-term solutions to protect Carlsbad's coastline."

Before we cry "bah humbug" at the state of our coast this holiday season, remember that Carlsbad is far from defeated. The ocean will always be a powerful neighbor. It will test our infrastructure, carve our bluffs and reshape our shorelines. We may not be able to stop the cycles of erosion completely, but we can learn to live within their realm.

After all, we wouldn't have the seawall walking path, one of Carlsbad's most beloved strolls, if it weren't for the storms of the 1980s that left the shoreline bare and filled with cobblestones. Sounds familiar, doesn't it? Destruction from erosion was transformed into something valuable, and that same cycle is unfolding today. We will rebuild and come back stronger.

Change is uncomfortable, but Carlsbad's future rests on active stewardship, adaptation and resilience. Perhaps we simply need to shift our perspective on what makes a beach beautiful. The famous rocky shores of the French Riviera, the Greek Islands and the Amalfi Coast are celebrated worldwide for their striking, picturesque allure. Our own beaches possess the same timeless elegance, whether sand or rock-filled, and that is something to celebrate.

a) Damage from high surf in the Tamarack parking lot after winter storms in 1982 (photo courtesy of the Carlsbad Journal/Carlsbad City Library Carlsbad History Room). **b)** High surf blasts against beach rocks. **c) and d)** Rocks have replaced sand at the beach wall. **e)** A passerby watches the waves lap up against the wall (photos by Bryan Snyder).