

Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

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Beach sand burglary



Sand is being mined from the back beach in southern Monterey Bay at a rate of about 200,000 cubic yards annually.

In addition to the natural loss of beach sand due to wind blowing onshore, sand was historically mined directly from some California beaches and dunes. Three major sand-mining companies removed sand directly from the beach in southern Monterey Bay for about 80 years. The smooth, rounded, amber colored quartz sand was in great demand for many industrial uses, including water filtration, abrasives, and various industrial coatings. One utility company in San Jose stipulates that utility trenches should be backfilled with this particular sand. As a result, southern Monterey Bay has been the most extensively mined shoreline in the U.S.

Sand mining near the mouth of the Salinas River started in 1906 and eventually expanded to six commercial sites: three at Marina and three at Sand City. Five of these operations used large draglines and huge buckets to mine sand directly from

the surf zone. The sixth sand plant is about 2.3 miles south of the Salinas River mouth where sand is extracted by a floating dredge from a manmade pond on the back beach.

Severe wave erosion of the dunes during the 1980s and early 1990's raised the question of whether the mining of 150,000 to 250,000 yds³ of sand from the beach every year was the cause of the ongoing shoreline retreat. The sandy bluffs between Marina and Del Monte Beach continued to erode at rates of 2 to over 6 feet a year. Stillwell Hall at Fort Ord, the Monterey Beach Hotel and the Ocean Harbor House condominiums were all threatened and partially undermined by continuing dune erosion. Stillwell Hall was ultimately demolished; a new seawall had to be built to protect the hotel, and two different revetments and now a new seawall have been built to save the condominiums.

Retreat of the shoreline continues. You just can't remove 15,000 to 25,000 dump truck loads of sand each year from a short stretch of shoreline and not expect some response. Waves expend a lot of energy on the southern Monterey Bay beaches; as the miner's draglines lowered the beach level, the waves began to break closer to shore, and expended their energy against the sandy bluffs, which began to erode more rapidly.

Although beach sand mining began in 1906, it wasn't until 1960 that there was any regulation. Even then, for proprietary reasons, the sand extraction industry did not have to tell the public how much sand they were actually removing each year. In the mid-1980s, after a connection between sand mining and shoreline erosion rates was recognized, all but one of the permits were terminated. The remaining sand company continues to dredge about 235,000 cubic yards of sand annually from a back beach pond, a rate equivalent to all of the former sand mining operations combined. Despite what appears to be a clear relationship between sand removal rates and shoreline erosion rates, and the threats and ongoing problems created by that erosion, the mining has fallen outside of the jurisdiction of any permitting agency for over 20 years and continues today. Public beach sand is being removed by a private company and having major impacts, but no state agency has taken any steps to halt the loss of sand and shoreline.