

The American shoreline is steadily eroding, thanks in part to a sea level that is rising at a rate of more than one foot per century. But as we see from Hurricane Dennis - and Charley, Ivan, Frances and Jeanne - a landfalling hurricane poses a serious and more immediate threat.

It isn't the beach that is in danger - erosion along undeveloped shorelines is almost never a problem. Erosion only poses a threat to condos, hotels, stores, roads and a myriad of other human trappings placed immediately adjacent to the beach.

We have long since learned that if we build seawalls along eroding shorelines to protect buildings, beaches disappear. As a consequence, beach nourishment — the emplacement of sand on an eroding beach — has become the favored way to hold beaches in place. But with nourishment comes a whole set of new problems:

The lifespan of a nourished beach, for example, is unpredictable and can range from a few months to several years. Now consider that it costs between \$1 million and \$10 million to put sand on just one mile of beach and nourishment looks more like a high-stakes gamble than a long-term solution.

Since 1965, over 800 nourishment episodes have taken place along the East and Gulf Coast at a cost of nearly \$2 billion. After the 2004 hurricane season, \$200 million more is being spent to replace eroded beaches in Florida alone. Most is federal and state tax money, but all goes to protect the interests of a very small minority of affluent individuals who decided to purchase expensive property next to an eroding shoreline. How much money and sand will be thrown into the sea after this hurricane season, well underway with Dennis?

Quality is another problem. In the past five years, we have seen a deteriorating beach scene where an increasing number of natural beaches are replaced by inferior quality sand. Poor quality sediment consisting of mud, rock and broken shell fragments has been used to stabilize miles of beach in Atlantic Beach, Pine Knoll Shores, Emerald Isle and Oak Island in North Carolina and Jacksonville Beach, Hutchinson Island and Anna Maria Island in Florida.

Nourishment sand is also being taken from places that, ironically, increase erosion rates. Even though mining sand from a natural tidal inlet increases erosion rates on adjacent islands and may be the most environmentally damaging way to obtain nourishment sand, inlets are now being coveted as a cheap source of beach sand. Erosion problems caused by inlet mining are already evident at Shallotte Inlet and will soon become apparent at Bogue Inlet, both in North Carolina.

State and federal officials who should be protecting our nation's beaches are asleep at the switch. Even most local politicians don't complain about bad beaches because the vast majority of coastal property owners — who would almost certainly insist on high quality beaches — are not permanent residents and unable to vote.

Building structures next to an eroding shoreline can't be considered anything but societal madness. Images of scaffolding damaged by Dennis, on buildings still being repaired after Ivan less than a year ago, provide a good illustration of this madness.

The nation needs to come to its collective sense about the future of development along our beaches and seriously consider retreating from eroding shorelines. Beach nourishment should only be used as a temporary shoreline stabilization option. Buildings should not be rebuilt after they have been destroyed by a hurricane and high-rise construction along shorelines needs to be discouraged.

Isn't protecting the quality of beaches for future generations worthy of drastic actions? Community leaders, together with state and federal officials, need to take a long-term view that favors the beach rather than allow quick fixes that favor buildings and the short-term economic interests of a select few.

When you hit the beach this summer, take a look around. Is the beach harder? Are there more rocks or sharp shells? Is it a different color? Can you swim without shoes? Do you see birds feeding on the beach?

If you don't like what you see, let city hall know how you feel. If they won't listen, vote with your feet and visit a community that is more responsible and concerned with the quality of beaches for future generations.

Your kids will be glad you did.

Orrin Pilkey, James B. Duke Professor Emeritus of Earth Sciences and author of A Celebration of the World's Barrier Islands and How to Read a North Carolina Beach. Andrew S. Coburn, associate director of the Program for the Study of Developed Shorelines, Duke University Nicholas School of the Environment & Earth Sciences.