

Contemplating sea changes in the ocean's shore



Hillary Hauser

The author is executive director of Heal the Ocean.

In 1955, when my family moved to the seashore in Santa Barbara, it was quite a different shore than it is now. As children, my brother, sister and I liked to play in front of the hotel down the beach. We'd congregate with friends at the lifeguard station at the foot of the stairs to the sand. On one side of the stairs was a playground with a big slide and swings. On the other was a raked beach where adults sat in neat rows of backrests.

As I walk this same beach today, I find it hard to believe it is the one I knew as a child. The large stairway was replaced long ago by a small set of steps descending sideways from the boardwalk, rather than

The tragedy in Asia is the result of earthquake and tsunami, but for over 20 years, ocean scientists have been discussing the increasing encroachment of the ocean on the world's shorelines.

straight toward the sea. The slide and swings and the lifeguard station also have been relegated to memory.

The reason for this change is simple. The sea regularly storms under the boardwalk, sometimes once or twice a day. In 1955, this occurred during an occasional winter storm, but rarely in the summer. Today, sea levels are higher, beaches narrower, and beach houses and

other waterfront developments are often hammered by the ocean.

The horrific tragedy in Asia is the result of a terrible combination of earthquake and tsunami, but for over 20 years, many ocean scientists have been discussing the subject of the increasing encroachment of the ocean on the world's shorelines.

Encroachment does not always mean some gentle action. In fact, it usually

means just the opposite. No matter how one looks at it, the inescapable fact is, the power of the ocean is now in our face.

Heal the Ocean, which derives its direction and drive from a combination of current events and many years of research into ecological, scientific and political issues related to the ocean, is — like everyone in the world — pondering the disaster in Asia. What to make of this tragedy?

The day after the earthquake/tsunami disaster, I pulled from my shelves the book, "Saving the Oceans," written by six "international ocean people" and pub-

*Please see **HAUSER** on **G4***

1/9/2005

Some people find a strong sense of comfort in the idea that the sea could someday reclaim much of the land we thought was ours. It is disconcerting and enlightening at the same time to think that the ocean might, in the end, defy human technology.

Dredges, dams, dikes won't stop sea from rolling in

■ HAUSER

Continued from Page G1

lished in 1992 by Key Porter Books, Canada.

My assigned chapter, titled "The Meeting Place," written and contributed to this project after much research, is about the shoreline, where ocean meets land. This highly desirable zone, where disasters occur, is also highly desirable for human activity — i.e., Southern California beaches, where much effort is being made in an attempt to stave off the sea's encroachment.

In reviewing the words of "Saving the Oceans," I cannot help but consider what scientists were saying back then, 12 years ago, relative to where we are now. The sea level in the Maldives is no longer six feet, but three feet, and the entire population of these islands — those remaining after the current tsunami catastrophe — already has applied to Australia for a mass-immigration to that country.

The glaciers that "will begin" to melt and retreat, as described in the text, already have begun to melt and retreat. Also, we are now four years past the estimated time scientists predicted a rise in both temperatures and sea levels as being "irreversible."

Fortunately, we won't be seeing tsunami disasters on a regular basis, but more and more we will be witnessing the effects of an ocean that is on its way in. If the above-mentioned researchers are correct, the ocean will be speaking quite loudly, and sometimes

violently, to us for the rest of our lives.

In terms of the current tsunami catastrophe in Asia, there will be important steps made to design a warning system for people living in low-lying coastal areas. Beyond that, there is great need to respond with wisdom to the problem of an advancing ocean that will increasingly chew up our shoreline.

Throwing dirt into the waves is not one of the more intelligent options. Neither is damming and building dikes. Dredging is perhaps one of the most lethal assaults on all forms of sea life, especially planktonic life and young sea creatures that need the inshore areas to grow up in. Heal the Ocean has made video-dives in reef areas downshore from dredging operations, to find nothing alive while the dredging is going on.

Why are we throwing dirt and sand into an ocean that is making an unstoppable march inland? Twelve years ago, the U.S. Environmental Protection Agency estimated that with present warming trends, the world's sea levels will have risen from four to seven feet by the year 2100.

A sea-level rise of this magnitude could mean the Maldives Islands in the Indian Ocean — six feet above sea level 12 years ago, and now three feet above sea level — will disappear.

Storms will drive an angry ocean inland to regularly flood Bangladesh and the Nile delta in Egypt. A sea-level rise of four feet will submerge marshes, sounds and bays, push into

river mouths, shove coastlines inland, and penetrate underground coastal aquifers everywhere.

If such a scenario comes to pass — and many scientists are saying it will — there is little we can do about it. There have been discussions about constructing barrier islands, or dikes and levees such as already exist in Holland. However, Bill McKibben, in his excellent book, "The End of Nature," points out that such measures may be self-defeating. Existing estuaries would be flushed by the new, advancing sea levels.

If we build walls, dikes and levees to protect oceanfront properties, these would prohibit the formation of new marshes or wetlands. Instead of the ocean "meeting the land with ease and grace," Mr. McKibben writes, it will bump into "an endless cement wall."

There are critics who scoff at the idea of irreversible warming and sea level rise, who say the ocean always has "run in cycles."

Twelve years ago, scientists admitted that accurate measurements might not be possible until the year 2000, but by then the rise in both temperature and sea levels may be irreversible. Many scientists, though, have taken the carbon dioxide problem seriously, and have met in workshops to consider various solutions. They've talked about fertilizing the oceans around Antarctica to increase microscopic plant life there that uses carbon dioxide drawn from the air. They've discussed growing millions of square miles of seaweeds

that consume carbon dioxide. And they've considered collecting billions of pounds of carbon dioxide from the world's power plants and pumping it into the deepest oceans, where they think the gas might solidify and stay put.

Some people find a strong sense of comfort in the idea that the sea could someday reclaim much of the land we thought was ours. It is disconcerting and enlightening at the same time to think that the ocean might, in the end, defy human technology.

Some people even think that any destructive act of the ocean is our payback for mistreating it as we have, using it as a dump for our sewage and other waste — witness book titles like "Neptune's Revenge."

In any case, many people right now are coming to the same realization that there is nothing that can withstand the power of a mighty ocean wave.

It is this same power that stirred Lord Byron to write:

"Roll on, thou deep and dark blue Ocean — roll!

*Ten thousand fleets sweep over thee in vain;
Man marks the earth with ruin, his control
Stops with the shore; upon the watery plane
The wrecks are all thy deed, nor doth remain
A shadow of man's ravage, save his own,
When for a moment, like a drop of rain,
He sinks into thy depths with bubbling groan,
Without a grave, unknelted, uncoffined and
unknown."*