Beach Management Alternatives

When protecting coastal property comes at the expense of adjoining beaches, it can set up a conflict that no one really wins—not the property owners, not beach-goers, not the government agencies charged with managing coastal areas, and certainly not the natural system.

There are alternatives. Here are some management tools that are being used to make Maui beaches and coastlines healthier for everyone:

Beach Nourishment

This process is used to create a new sandy shoreline where a beach is eroding or has been lost. It is the only management tool that protects coastal development without degrading the beach.

Beach nourishment involves placing sand fill along the shoreline to widen the beach. The sand may come from inland dunes or coastal plains, or from offshore sources such as dredge spoils from harbor maintenance, and underwater sand fields and banks.

So far on Maui, only small-scale beach nourishment projects have been undertaken, funded by homeowners associations such as Sugar Cove Condominiums in Pā'ia and Kana'i o Nalu in Mā'alaea. The sand for these projects has come from inland sand mines that also ship sand to O'ahu for cement manufacturing.

The potential for beach nourishment on Maui is limited by the availability of high-quality sand. Maui does not have dredging equipment or the knowledge of offshore sources to be able to tap them for nourishing beaches.

Restoring and Protecting Dunes

The first step in restoring damaged dunes is usually to erect fences that help trap windblown sand. In 1997, for example, drift fences were erected to restore Keālia Beach’s sand dunes. By 1999, sand had buried the fences in spots. Volunteers, including students and adults involved in the Kihei Canoe Club, took the next steps by helping replant native vegetation on the growing dunes. Native dune plants have dense root systems and spreading vegetation that trap even more windblown sand. They grow up through the new layers of sand to build larger and wider dunes.

Native plants and the dunes they help keep in place are sensitive to trampling. Plants can be uprooted by people walking across dunes going to and from the beach. Another approach to protecting dunes is to build moveable walkways that provide access without the danger of trampling. These walkways can easily be moved when needed.

Building Setbacks

According to the Hawai‘i Department of Land and Natural Resources document Coastal Erosion and Beach Loss in Hawaii at <www.soest.hawaii.edu/SEAGRANT/CEaBLiH.html>, much of the beach loss in Hawai‘i “could have been avoided if houses were not built so close to the water. The law presently allows homes 40 feet from the shoreline. On coasts experiencing chronic erosion this is too close and leads to hardening [building sea walls and revetments] in order to protect houses from the waves.”

“Shoreline setbacks” (the required distance from a structure to the shoreline) are intended to establish a buffer zone to protect beachfront
development from high waves and coastal erosion. In 1990, the Maui County Planning Department revised its rules so that some building setbacks were based on the average depth of the lot, rather than on the state's 40-foot minimum. But according to the Maui Beach Management Plan, more effective setbacks would be site-specific, based on projected shoreline erosion 30, 60, or even 90 years in the future.

Even if coastal erosion hazard maps are not used to guide government rules about building setbacks, these projections could be used to give planners and landowners information that will help them plan and design coastal developments.

**Construction Guidelines**

Many coastal landowners and developers are not fully aware of shoreline erosion, the potential impacts of development on the beach, and design and construction options that could minimize the threat to their property and the adjacent beach. Consulting with experts and government agencies could help them design projects with minimum impact. Since county and state governments are aware of the problems associated with coastal development and protection measures such as seawalls and revetments, they need to advise and educate coastal landowners on environmentally compatible alternatives.

In order to choose which strategies to use and where, we need to consider the history of erosion and accretion for each specific stretch of beach. These processes can vary dramatically even from one end of a beach to the other. Knowing more about how each stretch of the coastline has changed over time will help point out areas in which different approaches are most likely to work.

**Your Assignment**

On a separate piece of paper, write a one- to two-page paper describing how you think either Baldwin beach or Kanahā beach should be managed to protect the beach and the shoreline property behind it. Your paper should include suggested actions and explain your reasoning. In writing your paper, consider your coastal erosion projections for different stretches of this beach.