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A Case Study on Adapting to Erosion and Sea-Level Rise

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How is Florida going to cope with sea-level rise (SLR) and increasing coastal erosion and coastal flooding? A few voices have begun to talk about the "R" word: Retreat. For those that believe we will eventually need to move people out of some areas vulnerable to coastal hazards and SLR, the word "relocation" might be a better choice of words since it does not carry the negative connotation of "retreat." Regardless of what we call it, moving out of hazardous areas or back from dynamic coast lines will likely become a reality as SLR increases.

How would we move back from beach or relocate out of coastal areas? Relocation has occurred in some areas in Florida's past. What can we learn from this? The Town of Longboat Key offers a case study of relocating back from a moving coast line.

BACKGROUND ON THE TOWN OF LONGBOAT KEY

The Town of Longboat Key, a southwest Florida coastal barrier island, rests between the Gulf of Mexico to the west and Sarasota Bay to the east. Most of the island spans a width of only half of a mile, although it stretches nearly thirty-five. Ample development near the shoreline coupled with the evermore-pressing issue of sea level rise leaves Longboat Key susceptible to severe coastal erosion. The 7000 affluent residents who live on this slender, naturally shifting island must adapt their homes or lose them.

HISTORICAL ADAPTATION STRATEGY OF THE TOWN OF LONGBOAT KEY

Toward the late-middle twentieth century, the Town of Longboat Key altered the flow of sand across the island's beachs by maintaining and dredging waterways throughout the island.

Maintenance of the inlets exacerbated coastal erosion problems at a time when beach renourishment, an adaptation practice that replaces lost sand from outside sources, did not exist. Accordingly, the old 800-1000 square foot cottages on the island had to be moved shoreward or else swept out to sea.

In order to move a cottage, homeowners purchased new, vacant lots shoreward of the cottage's current lot and then transplanted the cottage onto the newly purchased property. About a half dozen of the original cottages still exist, while others have been added onto or combined with other cottages. These cottages have historic exemptions, allowing them not to comply with current elevation codes.

When people lived on a much-less-populated Town of Longboat Key thirty to forty years ago, relocating homes shoreward was economically feasible. Today, however, skyrocketing property values effectively halt this once-common practice. Nearly ninety-nine percent of the island has been built on – leaving only 200 vacant lots. Unlike the former less-populated Town of Longboat Key, another lot today will cost millions of dollars.

CURRENT ADAPTATION STRATEGY OF THE TOWN OF LONGBOAT KEY

One of the Town of Longboat Key's main current defenses against coastal erosion and sea level rise is beach renourishment. As part of a self-supported beach renourishment project, the homeowners on the island pay taxes that enter a reserve fund. This fund supports renourishment of Longboat Key's coastline every seven to ten years. This strategy has largely worked over the past 20-30 years since Longboat Key and Sarasota County have not suffered a direct hurricane strike in almost 70 years.

Another common adaptation practice is demolishing a susceptible or destroyed cottage and replacing it with a more shoreward, more elevated home. Demolitions occur roughly once to twice a month on the island, and not only are the smaller cottages rebuilt into mansions but even mansions are rebuilt into larger mansions. For instance, a 12,000 square foot, 15 year-old home is currently being demolished and rebuilt further shoreward. Because most of the property value resides in the land rather than the structure, relocating homes to new lots on Longboat Key is economically unfeasible as an adaptation strategy. Thus, homeowners choose to demolish their home rather than purchase new land in order to move their structure shoreward.

WHAT CAN WE LEARN FROM LONGBOAT KEY'S PAST?

First, we can learn that relocation can be a feasible response to shifting coastlines. Second, we learn that building types that are realistic to move and the availability of space to which to move are minimum requisites for relocation to work. Third, we learn that when the value of property resides almost exclusively in the land and relatively very little on the structure on the land, there is very little likelihood of the structure being moved.

These lessons may still be applied in parts of Florida where we have not yet stacked the deck against the possibility of living in areas for a while but moving away as hazards increasingly threaten them or in areas slated for redevelopment after a storm. Implementing policies that recognize these lessons could include options such as:

- Require building design and construction that makes relocation more feasible
- Ensure the availability of a viable parcel to which a building could be relocated; this might be accomplished through permitting requirements that require demonstration of ownership of a second parcel which is to remain vacant until such time as the building on the primary parcel is destroyed or relocated from the primary parcel to the vacant parcel

It remains difficult, however, to imagine how to address the difficulty of economic signals that place most of a parcel's value in the land rather than in any structure attached to it. However, if policies were put in place to make homes in at-risk areas easier to relocate, this might lead to limitations on the size homes. Such a limit might also cause some decrease to the value of the property since, for example, maybe a it would no longer be permissible to build a 10,000 or 20,000 square foot house. In any case, the bulk of a property's value in high-demand coastal areas will likely continue to reside more in the property itself than in the structure on it.