

Rising sea levels: a strategy for N.C.

By Orrin Pilkey
Raleigh News & Observer
November 29, 2009

DURHAM - Western Carolina University's Rob Young and I have argued that seas will rise at least 3 feet in this century and that, for coastal management purposes, a rise of 7 feet (2 meters) should be utilized for planning major infrastructure. While some question our recommendation, consider that:

A blue ribbon panel of scientists from Miami, the U.S. city considered most vulnerable to sea level rise (in terms of property damage) , predicted that the sea will rise a minimum of 3 to 5 feet by 2100.

A similar panel of scientists in Rhode Island predicts a minimal 3 to 5 foot rise for that state.

A Washington State report assumes a sea level rise along the shores of Puget Sound of a bit more than 4 feet.

A recent report to the state of California assumes a 4 foot rise along the California coast.

The Dutch, who take sea level rise more seriously than anyone, assume for the purposes of design of dikes and storm gates that sea level will rise 2.5 feet by 2050.

On a global scale, we know that sea level rise is causing natural barrier islands not artificially stabilized by coastal engineering to narrow. The Frisian Islands of Germany, for example, are currently experiencing erosion on both sides of the island (as are our Outer Banks). Island thinning is a recent phenomenon, within the last 100 years, or else these islands - which we know are thousands of years old - would not exist.

So what does sea level rise mean for North Carolina? A 3-foot sea level rise means the end of development as we know it on the 20 or so barrier islands that make up the 350 mile-long North Carolina coast.

Once sea level has risen 2 feet, for example, attempts to hold shorelines in place through beach nourishment - pumping sand from the ocean - will be futile, as sand is immediately swept away. Only massive seawalls that completely surround islands, at a cost of \$5,000 to \$10,000 per foot, will preserve them - temporarily and at the expense of the beach.

However, just as our islands will be in trouble, so too will be New York/Newark, Boston, Philadelphia, Washington D.C., and especially Miami. Not only will the cost of preserving our major cities in a rising sea level be immense - whether through the construction of Dutch-like storm gates at inlets or massive seawalls or moving buildings

back - but you can bet these cities surely will trump our barrier islands when it comes to funding.

If we do decide to "seawall" our barrier communities, our beaches will quickly disappear, leaving only the sea breeze and spray from storm waves to remind us of how things once were. Eventually we will be forced to retreat from our barrier islands, although abandonment may be a better characterization if we don't take action now.

The first step is to hold the line on North Carolina's very successful ban on hard stabilization. This means terminal groins must remain illegal, and the inevitable future pressure to build seawalls and other engineering structures must be resisted.

Step 2 is to prohibit high-rise construction and increases in the density of development on our barrier islands.

We need only look to Florida to see the problem. There, hundreds of miles of beaches are lined with high-rises and, as a result, seawalls. Because seawalls allow no flexibility to respond to a rising sea, Florida, is the state most poorly positioned to respond. Florida faces a future of shorelines lined with failed seawalls, no beaches and the wreckage of abandoned high-rises.

Step 3, when the economic and environmental cost of holding the shoreline in place exceeds the value of the property to be saved (as is certainly the case in South Nags Head and Rodanthe and perhaps also on Topsail Island), it's time to retreat.

The latest storm to hit the Outer Banks, earlier this month, produced the usual number of spectacular house-falling-in-photos but the more important photo could have been taken several weeks earlier. A spring tide in calm weather flooded N.C. 12 at the north end of Rodanthe. When houses and highways are flooded by simple lunar tides, the sea level rise has already occurred and its time to get out of there.

Compared to Florida - and every other coastal state - North Carolina is in good shape. With our small number of seawalls (mostly sandbags) and relatively few high-rises, we are best positioned to respond, in reasonable fashion, to sea level rise. We should do everything we can to keep it that way.

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