

As Florida Keys residents confront rising sea levels, what lessons?

Waters around the Florida Keys are nine inches higher than a century ago. Efforts to battle rising sea levels make the Keys 'a canary in the coal mine,' an indicator of what other areas might need to prepare for.



Chris Bergh, a scientist with the Nature Conservancy, examines a dead tree with son, Nate, near their home on Big Pine Key, Fla. Rising sea levels in the Florida Keys are swamping fresh ground water with salt-laden flood waters, killing local flora.

By [Richard Luscombe](#) / Correspondent CS Monitor/ March 4, 2010

Big Pine Key, FLA.

On many mornings over the past 22 years, the Rev. Tony Mullane has pulled back his bedroom curtains and watched endangered Key deer roaming the grounds of St. Peter Catholic Church. He considers the free nature show one of the bonuses of his ministry in the Florida Keys.

On other days, however, there are no deer to be seen – only water from the Straits of Florida lapping perilously near to the church buildings.

"It does come close to the church in a high tide," says Father Tony, as he's known. "There's a gravel pit behind us that's supposed to be a natural buffer from the water of Coupon Bight, but it fills, and sometimes laps over into, the church grounds."

What is happening at St. Peter is being repeated across the length of the 125-mile, low-lying island chain off Florida's south coast. Average sea levels on the islands are already nine inches higher than a century ago, according to environmental studies. Flooding has become much more common, which has prompted local officials and others to explore remedies. But in some cases, just how the islanders should proceed is still being figured out. (Read [here](#) to learn how the Netherlands have fought rising sea levels.)

"High tides are higher today, reaching farther inland than they did in the past. And the frequency of tides high enough to flood streets and salt-sensitive natural areas is greater," says Chris Bergh, director of the Nature Conservancy's Florida Keys program, who cites both his own observations and data from the National Oceanic and Atmospheric Administration.

"Some change is inevitable," adds Mr. Bergh, who lives on Big Pine Key with his wife, Elizabeth, and son, Nate. "It's how we adapt to that change and manage it to our best advantage."

Of course, the Florida Keys aren't the only low-lying places in the United States. People in plenty of other coastal areas are keeping an eye on the sea level – and are concerned about the future.

But the Keys' delicate ecosystem and unique geography make them of particular interest to global-warming observers, and the islands have become a "canary in a coal mine" – an indicator of what other areas might need to prepare for.

"The Keys are a very visible example of the effects of an irregular but persistent sea-level rise that we have seen since the Industrial Revolution," says Prof. Harold Wanless, chair of geological sciences at the University of Miami.

Bergh and fellow researchers recently completed an evaluation of existing climate-change data, and they produced an alarming study containing several scenarios for the Keys during the rest of the century. Across the Keys in a best-case scenario, the study suggested, the sea would rise seven inches by 2100, which could wipe \$11 billion from property values. In the worst-case scenario, the sea would rise 55 inches by 2100, with 5,950 acres lost on Big Pine alone. Property values over all the islands could take a hit of more than \$35.1 billion.

"Even if we get our act together – if we all stop polluting with greenhouse gases, we stop deforestation, and the population stops growing – there's still going to be a lag," Bergh says.

According to some predictions, the Key deer that Father Tony sees from his window will be gone, along with numerous other species of freshwater-dependent animals. Many plants wouldn't survive because of sea salt.

Residents got a preview of some of these issues when hurricane Wilma swept through in October 2005. For example, the house that Bergh and his family live in was surrounded by water. Tall pines in a forest encircling the home were killed when the salt-laden waters of Wilma's storm surge swamped the fresh ground water that the trees relied on. Now, the trees are dry and bleached gray.

These days, there is also dead and dying vegetation in more open areas and in hardwood hammocks closer to the coast. In these places, tides are reaching levels they never did before.

So what is being done to address the problems? Although some politicians have tried to avoid the issue, George Neugent hasn't. The Monroe County commissioner recently toured the islands from Key Largo to Key West, highlighting areas of concern in a report afterward. He is also part of a task force that three Florida counties have formed to tackle sea-rise and global-warming issues.

Mr. Neugent stresses that he isn't taking a "Chicken Little, sky is falling" approach, but he says that action is needed now to counter effects from a further rise in sea level.

"There are those who take a position that it's not happening at all. As elected officials, we don't have that luxury," he says.

One place already taking action is Sombrero Country Club in Marathon, where water spills onto the golf course during exceptionally high tides.

"We've put berms in place to keep the salt water out and the fresh water in," says Joshua Mothner, the club's general manager. "We've also been trying saltwater-resistant grass on the lower holes." (Read [here](#) to learn about flood-resistant rice.)

Even so, Mr. Mothner acknowledges, only so much can be done. For one thing, the club's driving range is almost devoid of grass because of damage from previous floods, and that is unlikely to change in the near future.

In Key West, meanwhile, where high tides frequently flood streets, city officials have committed funds to improve a drainage system that dates back to the 1930s. Almost 290 intersections in the city are to receive new gravity wells, which will allow excess water to drain out to sea. The construction of the first 23 is scheduled to be completed by summer.

In addition, grant money from the Federal Emergency Management Agency (FEMA) is going toward electric pumps at two sites where gravity wells are already installed but not working well.

Another measure that is needed, Neugent says: a program that would raise 30 to 40 roads in flood-prone areas. But Dent Pierce, Monroe County's director of public works, has neither the budget nor the personnel to get the work done.

"We have many roads having this tidal flooding. But we also have a lot of bridges that have met their life expectancy that need \$9 million of work to be put in good shape," he says. (Read [here](#) to see how New Yorkers deal with more frequent flooding.)

"The cost of everything goes up, up, up," adds Mr. Pierce. "Our entire road budget is only \$4.6 million, and almost all of that is taken up before we can think about raising roads."

Still, he's aware of the challenges posed by higher water levels. "I feel for the people who call us when [roads] flood and think we can come out and fix it today," he says.