Sea Level Rise On South Carolina Shore Is Becoming More Evident

By BRUCE SMITH 04/29/13 10:01 AM ET EDT

GEORGETOWN, S.C. -- Living in a coastal town or city with seawalls and docks on the waterfront, it can be difficult to notice the sea level rise by increments each year. But effects of higher sea level are very clear down a winding dirt road in Georgetown County where acres of what was once a forested wetland have morphed into a salt marsh of dead trees jutting toward the sky.

"When you go into the field, you really see a lot of trees dying. That's the first thing that catches your eye," said Alex Chow, who teaches biosystems engineering at Clemson University's Baruch Institute of Coastal Ecology and Forest Science located at Hobcaw Barony, a 17,500-acre wildlife refuge northeast of Georgetown.

Chow and two other colleagues at the institute used aerial photos to map how the salt water has advanced into freshwater Strawberry Swamp from nearby Winyah Bay.

Their study found that over the past six decades, the amount of salt marsh in the area has increased from about 4 acres to more than 16 acres. The study was published in December in "Wetland Science and Practice," the quarterly journal of the international Society of Wetland Scientists.

"Over long periods – and what we looked at is over 60 years – the maritime forest retreats at approximately the same rate sea level rises," said Tom Williams, a professor emeritus of forestry and natural resources who is a co-author.

He's not ready to say the all the change over six decades is the work of global warming.

"Sea level rises and falls based on earthquakes and changes in a great number of things. I'm not the expert to say how much sea level rise in the last 20 years is climate change and how much is other things," he said.

Bo Song, an assistant professor of forestry and natural resources also contributed to the study.

The study notes that along the state's north coast, the sea level rise has average 3 to 4 millimeters a year during the past century or so.

William Conner, a professor of forestry and natural resources at the institute, said that what is happening in Strawberry Swamp is similar to what is happening throughout the Southeast where the shorelines tend to be flattened. The dead trees along the Cape Fear River in Wilmington are an example, he said. In areas where rivers are dredged for shipping, it also makes it easier for salt water to impinge on freshwater areas.

"It's been a little more dramatic in recent years," he said.
"Based on the calculations in this study, you can see it's happening much faster in the past two decades," Chow said.

In natural areas sea level rise will mean a lost habitat for animals and birds that inhabit freshwater swamps. Salt marshes are also an abundant area for various species. But it can take years for the salt marshes created out of other land to become productive as a spawning ground for shrimp and other creatures.

"I call it a degraded swamp," Chow said. "It will take some time for that to happen."