Sea-level rise would impact coast

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The impacts of a climate that's continually warming could be far reaching for coastal Louisiana, local scientists say.

"The marshes in Terrebonne and Lafourche parishes need to grow up at a rate that keeps pace with sea level rise. If they don't grow vertically at a rate that keeps pace with seal-level rise, they're going to drown and eventually die and disappear," said Alex Kolker, a coastal geologist at Cocodrie-based Louisiana Universities Marine Consortium. "I think it could be very, very significant."

Kolker, who served as a reviewer of an Intergovernmental Panel on Climate Change report, said global sea-level rise spurred by climate change is a little more than 3 millimeters a year, but by the end of the century could exceed 1 centimeter.

"When you put that in the context of a coast that's already sinking at several millimeters a year, in some places several centimeters a year ... it becomes concerning," he said.

Sea-level rise could push salt water farther into inland marshes, killing plants and animal life in fresh and brackish marshes, Kolker said. Higher water levels would also put stress on levee systems, making areas like Houma more susceptible to flooding, he added.

The rise in sea level coupled with the increasing temperatures may also mean stronger, more violent hurricanes.

"With a little bit of sea-level rise, what we think of as a 100-year storm could become something like a 50-year storm," Kolker said.

The past year was the hottest on record since 1880, according to two federal agencies. Scientists with NASA and the National Oceanic and Atmospheric Administration discovered the finding through analyses over 2014.

The 10 warmest years on record, with the exception of 1998, have occurred since 2000.

Matt Rota, senior policy director for the Gulf Restoration Network, said warmer temperatures can increase the possibility of a larger Gulf dead zone, an area of little to no oxygen near the state that covers thousands of square miles.

"As things warm there's potential for allowing for more algae growth out in the ocean," Rota said. "So we could see dead zones earlier and later than we normally do."

The dead zone forms off the Louisiana coast every summer as excess fertilizer from farms and cattle pastures, particularly in the Midwest, flow into the Mississippi River. When the water pushes its way into the Gulf, phosphorous and nitrogen fertilizer, together with the hot summer sun, create an explosion of algae growth.

When the algae sinks and decomposes, most of the oxygen normally used by sea life

is used up, forcing organisms such as crabs and shrimp to die or find more habitable waters.

“When they swim away it makes it more difficult to predict where the fish and shrimp are going to be for our fisherman,” Rota said. “That often will mean they have to spend more money and more fuel to get to where they need to go to catch the shrimp and other fish.”

The situation isn’t hopeless, as there are ways to reduce, if not reverse, climate change, Kolker said.

Coastal restoration efforts to create marsh and reintroduce sediment, such as those planned in the state’s 50-year, $50-billion master plan and those already underway, can help combat sea-level rise, he said.

“There are ways that we can get (sediment) down to places like south Terrebonne through some of the marsh creation strategies that you’ve seen in the master plan,” he said. “Those are often like a dedicated dredging. And it might be possible to bring some additional flow from the Atchafalaya River to south Terrebonne and Lafourche.”

Growing the size of marshes creates additional benefits, Kolker said, because more plant life along the coast means more carbon dioxide, the culprit of global warming, can be reduced.

“Basically the marshes and marsh plants pull, like any plant, carbon dioxide out of the atmosphere and our marshes are just incredibly productive,” he said. “It’s possible that you could use that productivity of the marshes to actually reverse global warming.”

New Orleans-based Tierra Resources has figured out a way to do exactly that, by measuring the amount of carbon dioxide wetlands soak up, a process known as carbon sequestration.

Sarah Mack, Tierra president and CEO, said carbon credits can be given to landowners and exchanged for cash to help pay for restoration projects or replanting marsh vegetation.

The process creates an incentive for coastal restoration, in addition to the ecological importance, Kolker said.

“Louisiana alone would not be enough to change the planet, but it could be part of the solution,” he said. “To combat global warming you need a whole lot of big things, but this is one small thing we could do.”

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