

Troubling tides

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If the sea level rises nearly three times faster than today, many of New Jersey's precious tidal marshes would be in trouble.

Even if the water rises that rapidly, tidal freshwater wetlands in the state would be OK, according to Denise J. Reed, a professor in the Department of Earth and Environmental Sciences at the University of New Orleans.

But tidal saltwater wetlands, which include those in brackish waters, would be threatened under that scenario, Reed said. She chaired an expert panel that looked at three sea-level rise scenarios in the mid-Atlantic for the federal government.

"The wetlands are of immense value," said Michael J. Kennish, a research professor at Rutgers University's Institute of Marine and Coastal Sciences, who was not on the panel.

"We potentially would really lose a lot of our fisheries" as a result of sea-level rise, said Kennish, of Toms River.

That's because tidal marshes are breeding and nursery areas for fish and shellfish, said Kennish, who reviewed human impacts on coastal salt marshes in a scientific article published in 2001.

Concerned about the potential impact of sea-level rise, scientists and officials would like to ensure that tidal wetlands will be able to migrate or build up as the water rises because of global warming.

Tidal wetlands are homes and havens for animals and plants, control flooding and erosion, and filter runoff, among other benefits, according to the New Jersey Meadowlands Commission and Wetlands Watch Web sites.

"We've lost half of our wetlands in the last 100 years to development," said James Lovgren, a commercial fisherman who lives in Brick.

"To lose more wetlands to global warming is probably a blow that many fish stocks" could not recover from, said Lovgren, whose boat, the Viking II, is docked in Point Pleasant Beach.

The global sea level is projected to rise by about 7 to 23 inches by 2100, not including potentially rapid changes in Greenland and Antarctica, according to an Intergovernmental Panel on Climate Change summary report released last month.

The relative rate of sea-level rise in New Jersey is about twice the global rate, experts have said. That's because the land here is sinking as the sea is rising.

And the sea may rise 2 or 3 feet or even higher off coastal New Jersey by 2100, experts have said.

Sea-level scenarios

Reed said she convened a panel of marsh experts on behalf of the U.S. Climate Change Science Program to consider the response of coastal wetlands in the mid-Atlantic to sea-level rise scenarios.

The panel's report, which covered the region from the Virginia/North Carolina line to the eastern end of Long Island on the Atlantic coast, has yet to be released to the public.

The sea level has been rising for thousands of years, and marshes survive by moving inland and building up vertically, Reed said.

"They don't just sit there and take it," she said. "They fight, if you like."

The panel considered scenarios provided by James G. Titus, project manager for sea-level rise in the U.S. Environmental Protection Agency, she said.

The scenarios for the Jersey Shore and Raritan and Delaware bays are:

Current sea-level rise, which is about 4 millimeters a year, or about 16 inches in a century.

The current rate plus 2 millimeters a year, or about 2 feet in a century.

The current rate plus 7 millimeters a year, or about 43 inches in a century.

The experts think that New Jersey's tidal freshwater wetlands, which are not influenced by salt, would survive even the highest of the three scenarios because they build up by accumulating organic material, according to Reed.

For the most part, tidal saltwater wetlands are "not really degrading now," although some along Delaware Bay are "not in such good shape," she said.

If the current rate of sea-level rise increases by 2 millimeters a year, tidal saltwater wetlands "stand a good chance" of surviving, Reed said.

But how well they survive will depend on how much sediment they receive, and storms are one of the main sources of sediment, she said.

The expert panel's view was that tidal saltwater wetlands facing the highest rate of sea-level rise "would be in trouble," Reed said.

"The important thing is to think about what we can do to give them a better chance if sea level is higher," she said.

New Jersey has very low-lying areas, especially salt marshes, which are "very susceptible," according to Rutgers' Kennish.

"The problem with New Jersey is we're not delivering a lot of sediment to the shorelines," he said.

Too much development is behind wetlands, and they have no place to go and will get flooded, Kennish said.

"The marshes are not going to be able to continue to migrate," he said.

Once the state loses its salt marshes, the infrastructure of coastal communities will be in trouble, Kennish said.

"In the long run . . . the picture isn't really great," he said.

"It's a really big deal," he said.

This story includes material from previous Asbury Park Press stories. Todd B. Bates: (732) 643-4237 or tbates@app.com

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