

Lives on the sea: She builds a career on shifting sands

Keeping beaches from washing away is scientist's goal

By Bo Petersen
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The profession itself is a mouthful: coastal geomorphologist.

Her job is predicting where currents and tides will push the shifting slurries of shore sand, and how to manage it to replenish beaches.

The headquarters of Elko Coastal Consulting recently moved from St. Petersburg, Fla. to a grove of live oak on a bluff overlooking reedy Leadenwah Creek in the countryside of Wadmalaw Island. It's right there on the dining room table, just across the great room from the living room where Sesame Street toys have been blissfully strewn.

"You're looking at it," Nicole Elko Payne smiles when asked about her staff. And that doesn't include Ainsley, the 13-month-old in her arms.

On the table is a series of maps of the coast of Pinellas County, Fla., where a \$40 million beach nourishment project is under way for nine miles of the Gulf Coast. She is obtaining the environmental permits, a detailed, painstaking task that takes about three years.

Payne just returned from a meeting with the U.S. Army Corps of Engineers' Jacksonville District, updating the district on her progress. On the maps a red line highlights the point at which a limestone hard bottom offshore is closest to the beach. The rich coral bottom is vital to sea life. She has to make sure any dredging, placing or migration of the nourishment sand stays off it.

Beach nourishment is controversial; in South Carolina, the state's coastal regulatory goal is beach retreat, gradually moving structures back from the dunes as the sea closes in. Payne's work is the antithesis. She is one of the hired guns that communities bring in to make a nourishment happen.

"She is one of a sea of people out there who are extraordinarily optimistic about beach renourishment. They're damaging the response to sea level rise," said Orrin Pilkey, geologist and emeritus professor at Duke University, whose study led to early concerns about the impact of erosion and sea level rise on beach communities.

"I'd love to see her help some community implement beach retreat policy rather than renourishment," said Rob Young, coastal geology professor at Western Carolina

University. "At some point it's going to be more cost-effective to move structures back rather than build sand in front of them. Anybody who can bring some energy to that discussion will be welcome."

For Payne, the work is applied research.

"You're in science. You're doing a lot of science. But you're doing something that benefits the economy. I like seeing results. A lot of scientists don't have that luxury," she said.

"The amazing thing about a beach, any beach, is ... you can go out to Deveaux Bank one day, go back the next day and it's completely different. The dynamics are fascinating. (Beach nourishment) is just a practical way to maintain our beaches. People live there. You can say, allow the beaches to retreat. But tell that to the people on Kiawah. Tell that to the people on Isle of Palms."

She works with an intensity in her eye and a wrap-around smile that doesn't seem to quit.

Payne is "a great pedigree in our field. She's smart. She's a good communicator. It's nice to get that kind of talent in our state," said Tim Kana, president of Coastal Science & Engineering in Columbia.

"She has a sense of how a lay person needs to hear scientific information to help them understand it," said Harry Simmons, president of the American Shore and Beach Preservation Association, for which Payne leads a science and technology committee.

Payne, 35, is a long way from her roots in the countryside out of Pittsburgh, Pa. She fell in love with coastal geology on a field trip to Assateague Island National Seashore in Maryland. She studied it at the University of South Florida with coastal morphology guru Richard "Skip" Davis, did her doctorate work on the Pinellas County beaches and became a coastal manager there.

Then she ran into one of those shifting dynamics deals in a business rife with conflicts. She won a reputation for work on tourist meccas like Honeymoon Island. People began to call for her expertise. She talked it over with her boss, and formed the company as a side business with the understanding that she would clear each contract with him. She got caught in a conflict of interest after taking a job in Florida, and was fired.

The conflict was inadvertent, she said. She was surprised to get more than a reprimand.

She already had met dredging company vice president Tom Payne, her husband, and made plans to move to Wadmalaw with him. After living in a crowded tourist beach town, "it felt like I went from claustrophobic to wide open spaces," she said. She now is expecting their second child.

The coastal geomorphology field is small and getting smaller. Federal beach research funding has dried up that formerly paid for a lot of graduate programs, the cost of nourishment programs keeps escalating and more localities are adopting a beach retreat philosophy. Payne is, she said, "sort of a dying breed." She hopes to help change that.