

Erosion

Do you live near a beach? Does it seem smaller this year? It just might be. Beaches on the Atlantic coast, for example, lose about two feet a year. Why are beaches shrinking? They experience erosion.

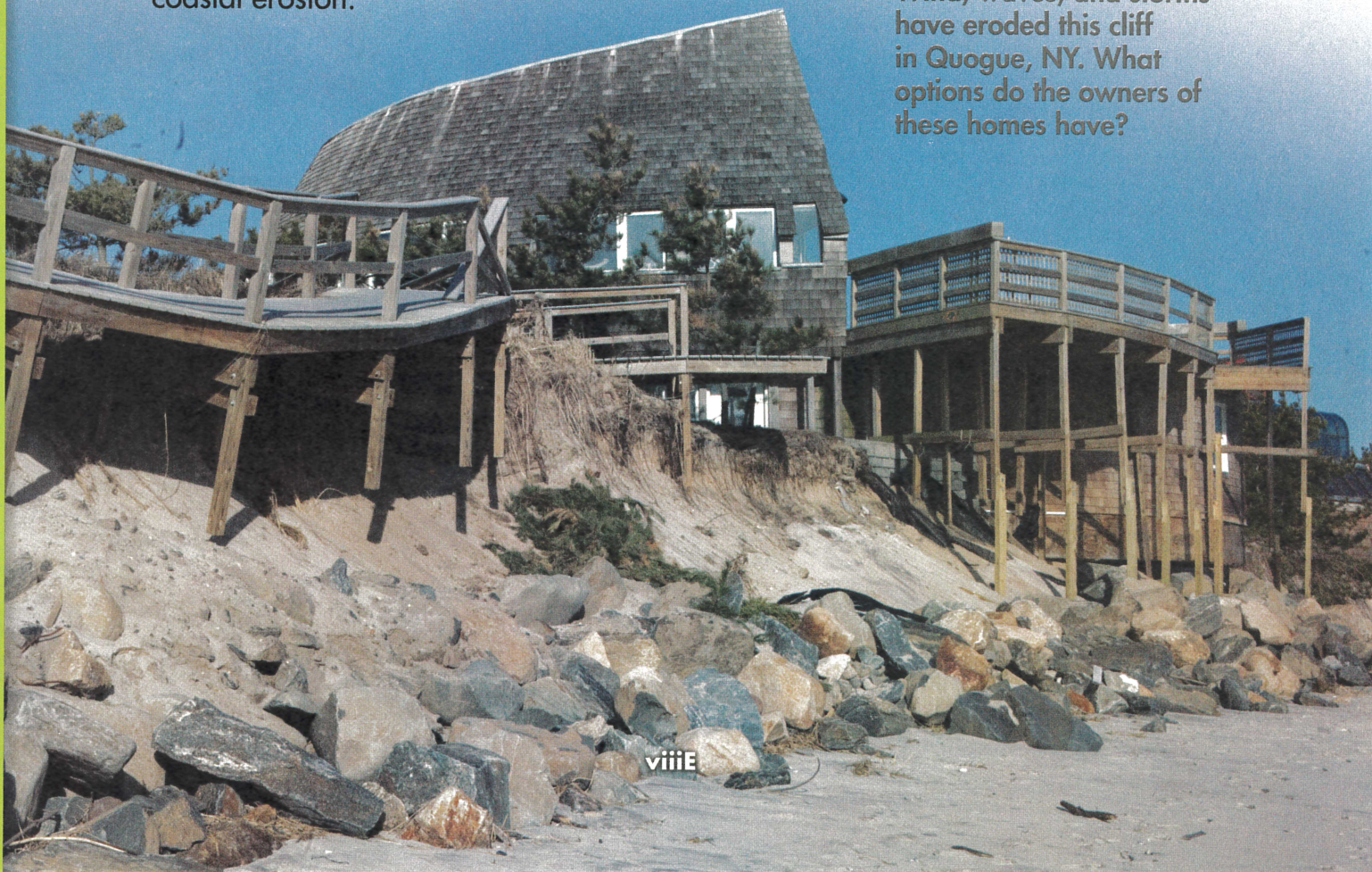
Little by little, wind and water carry away the sand. Large storms, such as hurricanes, carry away even more. The same is true of all land along the shore.

Scientists are also concerned about the rise of sea levels. They fear that as sea levels rise, erosion of coastal lands will increase. This could endanger the people who live on the coast. Scientists and engineers are looking for ways to control coastal erosion.

Take It Further

Why do people try to control erosion? How do they control it? Do research to learn about one technique for controlling erosion. On an index card write the name of the technique. On the other side write three clues that could be used to guess the technique. Then, in a small group, share what you learned. Try picking cards at random and reading the clues to see if the group can "Guess the Technique."

Wind, waves, and storms have eroded this cliff in Quogue, NY. What options do the owners of these homes have?



Holding Up Hillsides

The hill behind your house is eroding. You want to stop the erosion before you lose your house. Who do you call? An erosion control engineer— a soil scientist who specializes in preventing erosion. These engineers understand the soil and the environmental conditions. They understand the problems caused by erosion. They work to design and create natural and human-made solutions.

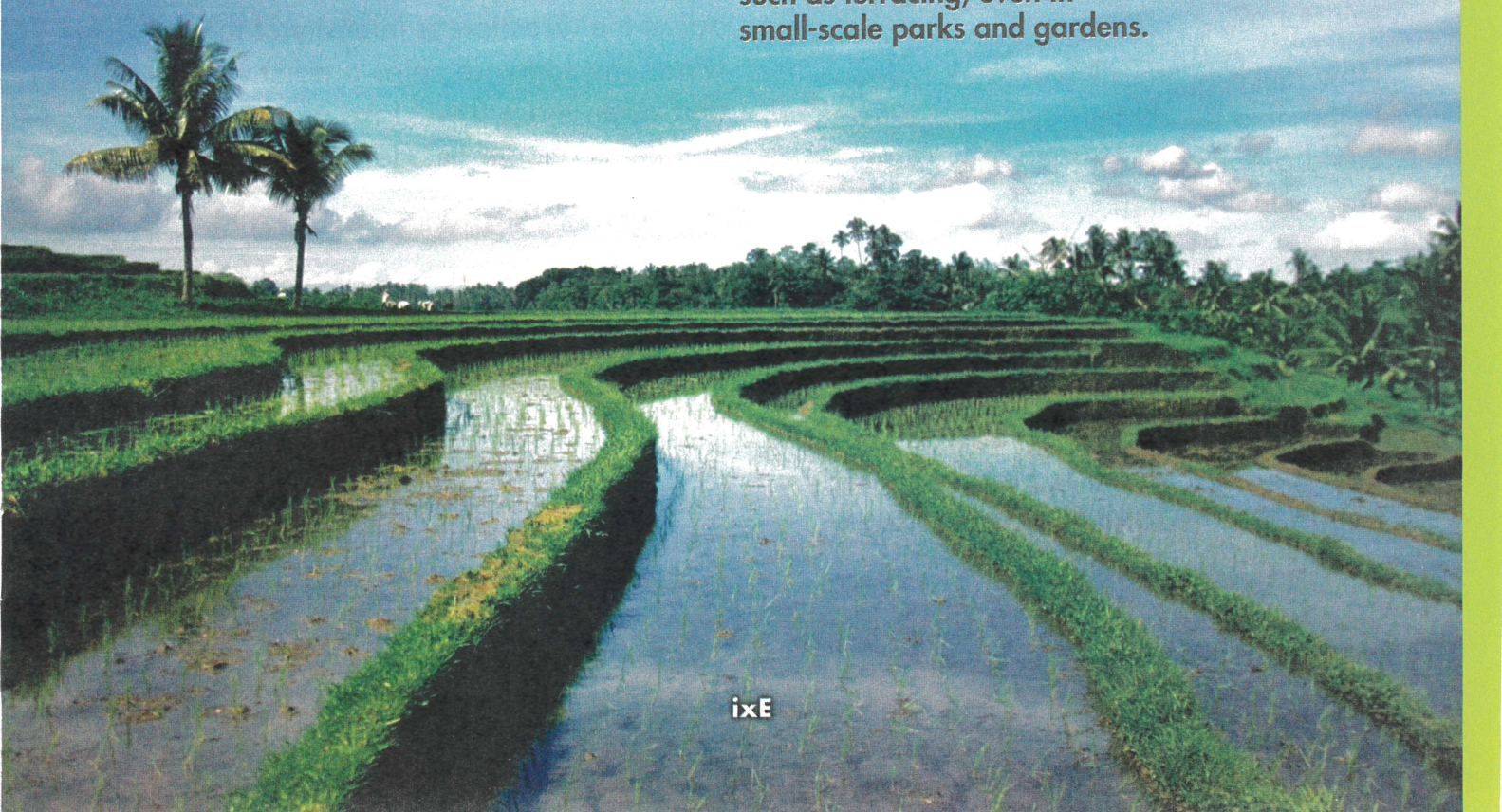
An erosion control engineer studies your eroding hillside. He or she knows what plants might help to hold the soil in place. Perhaps a rock wall, or a burlap blanket will help. Like any good designer, these specialists will ask you questions. What are your needs as a landowner? What is your budget?

The engineer must also monitor your hillside over time. As the hill changes, more adjustments may be needed.

Take It Further

Choose one place in your community where erosion is a problem. Create a fact sheet to help an erosion control engineer plan a project for the area. Answer questions about the area that you think would help. Start with the following. What causes erosion here? How is the area used? Who owns it? What do people like most about this area? What plants, land features, or structures might improve it?

Terrace farming reduces the rate of mountain erosion. Erosion control engineers use techniques, such as terracing, even in small-scale parks and gardens.





Simulation software can calculate the amount of erosion in an area, given certain weather and environmental conditions.

Virtual Erosion

How much soil will be lost in the next rainstorm?

How much riverbank will wash away in the next flood? Imagine if scientists could predict erosion! In some cases, they actually can.

Scientists and programmers have developed erosion prediction software. The software takes certain conditions and simulates them. It then calculates the amount of soil loss that is likely to occur. One program simulates erosion caused by floods. Another calculates wind erosion.

You can input different types of soil for your area. You can add the different land features and plants. Then, add in the

amount of expected rainfall. You can adjust the direction or intensity of the wind. The software helps predict where and when erosion will take place. This in turn helps people decide what actions to take to control erosion.

Take It Further

Scientists are still improving erosion prediction software. What would you do to make this software more helpful? What functions would you add? Why? Describe the new program to a partner. Then, create a slideshow or other sales presentation that describes your new and improved software.