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IMPROVING ENVIRONMENTAL QUALITY THROUGH MARKETS

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Preserving Beaches

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Along the coast of South Carolina, private island communities-Sea Pines on Hilton Head Island and entire islands such as Seabrook, Kiawah, Dewees, Dataw, Daufuskie, and DeBordieu-are protecting their beaches and other environmental resources. They are not doing this because of government regulation but in order to maximize the value of their investments.

Extensive resort and residential communities on coastal barrier islands are a recent phenomenon. Until the 1960s, developers gave little thought to the value of open space, harmony with nature, or the stabilization value of sand dunes and vegetation. They sometimes built close to the sea, used seawalls, revetments, and bulkheads. They clearcut tree stands and filled in marshes.

In the 1960s, however, rising prosperity and growing interest in the environment led many private developers to see the islands in a new light. The notion of total community development replaced traditional lot-by-lot development.

Hilton Head, for example, a large island off the coast of South Carolina, was heavily logged in 1950. However, after a bridge was built from the mainland, bringing visitors and potential residents by car, owners began to realize that the island had something much more valuable than timber: the natural beauty of beaches, trees, and water.

Charles Fraser, who developed Sea Pines resort on Hilton Head, was a pioneer in preserving that beauty. He kept trees standing along the coast. He used natural building materials that blended in with the surroundings, designed lots to maximize their views, built houses that were open to the outside, and constructed streets that wound through protected trees and natural vegetation. Fraser set aside some of the land as permanent natural preserves. According to Michael Danielson (1995, 34), "Sea Pines became a training ground for developers, architects, landscape designers, and others who later took their lessons to resorts and new communities across the nation."

Fraser was not alone. Developers on Kiawah Island, Dewees Island, and others took similar steps to meet the needs of Americans who appreciated preservation as well as homesites. They located housing farther away from the ocean than required by state law. They protected the shoreline ecosystem by hiring geologists, biologists, and engineers as consultants. They constructed walkways over dunes, limited entry-points onto the beach, protected wildlife and trees, and restricted the use of chemicals on golf courses and roadways. Above all, they protected their beaches.

Seabrook Island, about 23 miles south of Charleston, South Carolina, is a case in point. It has severe, recurring beach erosion problems caused primarily by natural elements. Bordered by tidal inlets (the North Edisto River, Kiawah River, and Bohicket Creek), Seabrook has the kind of shoreline that shifts continually.

The 2,200-acre island, with three and a half miles of private beach, is heavily wooded and crisscrossed with marshes, lagoons, and tidal creeks. It has over 2,300 separate, privately-owned properties-495 single family homes, 1,003 villas, and 852 undeveloped lots. Except for a convenience store, a golf pro shop, and two restaurants, commercial activity (including schools and churches) is kept outside a security gate.

During the island's early development, little was known about shoreline dynamics. Beach protection was piecemeal and left primarily to individual property owners. Between 1975 and 1982, several "hard" engineering projects involving barriers to erosion such as sandbag revetments, groin, concrete sheetpile walls, and riprap stones were undertaken. The cost was $3 million, paid for by individual property owners.

As knowledge grew, efforts switched from these "hard" engineering techniques to "soft" engineering projects, which involve replacing lost sand with sand from inland sites or nearby ocean locations. Beach nourishment projects appear to provide significant benefits. A study (using the hedonic technique) of a nourishment project at Seabrook shows that increasing beach width from 322 to 472 feet raised the

value of oceanfront houses by $22,718 and the value of houses one-half mile from the beach by $8,081 (Pompe and Rinehart 1999). However, beach nourishment is usually short-lived.

Seabrook residents hired a geologist to advise them and in 1983, at a cost of $300,000, relocated Captain Sam's Inlet to the north. This was a success. It caused sand to accrete on the island's beaches (Kana 1989). In 1990, a beach nourishment project widened Seabrook's beach area, although storms in 1994 seriously eroded portions of the beach once again. In the spring of 1996 Captain Sam's Inlet was again relocated northward at a cost of $500,000, since it had migrated back to its 1983 position. Similar projects will be necessary in the future, a fact of which residents are aware. Inlet relocation is planned at intervals of approximately 10 to 15 years, with additional beach nourishment expected from time to time.

Seabrook's beach protection projects are paid for with funds collected from annual beach taxes and special assessments. Local property owners on Seabrook must give their approval via the ballot. This means that a beach protection project is not likely to be undertaken unless the expected benefits exceed the costs.

Property owners make a careful assessment of benefits and costs and demonstrate considerable interest in who pays and who benefits. Although Seabrook residents have paid substantial sums for some projects, in 1996 a majority of property owners voted against a proposal to place 300,000 cubic yards of sand around Renkin Point. It would have cost each property owner an additional $375. In spite of a lavish information campaign, the Property Owners Association was unable to convince a majority of property owners to cast a favorable vote.

Not only do property owners have a vested interest in protecting beaches, as communities they also engage in cooperative agreements with other communities. For instance, the decision to relocate Captain Sam's Inlet required an agreement between Seabrook and Kiawah, a neighbor island to the north.

The effectiveness of actions by homeowners stands in sharp contrast to the actions of government to control erosion and otherwise protect the beaches. Although a flurry of state and federal laws have mandated "coastal management," until 1982 the federal government actively encouraged development of barrier islands. And one of the stated purposes of the South Carolina Coastal Council, which regulates coastal activity, is to ensure "public access." This means encouraging the construction of bridges, parks, ramps, docks, piers, and ferries-the kind of development that leads to the abuse of the ecosystem.

The experience of coastal barrier islands shows the close link between private property rights and protection of the environment.

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