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# Comments on Sustainable Coastal Development Through Community Support: Myth or Reality?

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## What is the Problem?

Coastal land resources are scarce because of high demand and low supply. Demand includes commodity value and amenity value. Commodity value refers generally to the direct market value of coastal resources, such as the value or price of coastal land for residential and commercial development. Amenity value refers to the nonmarketed, often indirect, value of coastal resources, such as the public recreational benefits of beaches. As U.S. population and the desirability of coastal regions as places to live, work, and recreate continue to increase, both commodity and amenity value demands for coastal resources will keep growing as well. At the same time demand pressures on coastal resources are growing, the supply of these resources is shrinking, as discussed in the invited-paper case studies. Along the coast of Georgia, beaches are washing away. In Trinidad, wetlands are being drained and converted to rice production. In Louisiana, coastal land loss is literally downsizing the state's coast. Thus, the fundamental economic problem underlying all of the very interesting and policy-relevant invited-paper case studies is the ever-expanding gap between coastal resource demand and supply; that is, resource scarcity.

## What Are the Solutions?

One of the first lessons taught in introductory economic theory courses is that under the proper conditions, private ownership and *laissez-faire* market transactions will efficiently solve resource scarcity problems. However, in the case of coastal resources, economic theory suggests the "free market solution" is likely to result in *inefficiency* problems because of the nonrival, nonexclusive characteristics of coastal amenity resources and values. The "free market solution" may also be challenged based on *equity* or *distributional* concerns or criticisms related to private gains from public resources and exclusivity resulting from restricted public access, say, to beaches. Efficiency and equity concerns lend support for public policies or actions to manage coastal resources in the United States and Trinidad for private and public benefits.

The case studies described in the three invited papers provide different examples of alternative property right structures for managing the private and public benefits of coastal resources. In the Louisiana case study, Elmer Island until recently was managed under private, fee-simple land ownership with public trust management of coastal beaches and wetlands. Under public trust management, natural resources, such as beaches and the waters that lap onto them, are held in trust and managed by public agencies for the benefit of the general public. The proposed solution in Louisi-

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ana for the recent closing of Elmer Island as a private recreational area open to the public for a fee is to change the property right structure to public, fee-simple land ownership and public trust management of beaches and wetlands. However, it is not necessarily clear whether or not public ownership and operation of Elmer Island as a recreational park would be more efficient than private ownership and operation as a recreational park, assuming a private buyer steps up who would be willing to continue allowing public access for a fee as in the past. Public ownership and operation of Elmer Island as a recreational park, however, may be viewed as more equitable than private ownership and operation.

In the Georgia case study, beach loss in two coastal communities was studied: Jekyll Island and Tybee Island. Current and proposed property right structures on Tybee Island are the same and consist of private land ownership and public trust management of beaches. Current and proposed property right structures on Jekyll Island are also the same, but consist of public land ownership with private use rights and public trust management of beaches. Most of the land on Jekyll Island is publicly owned by the State of Georgia. The state leases a limited amount of land for residential homes. In the case of both Jekyll and Tybee Islands, solutions to beach-loss problems involve modifications or additions to public trust management of beaches in the form of beach nourishment (replacing what nature has taken away) and beach retreat (letting nature continue to take away). The beach nourishment and retreat options have interesting and complicated efficiency and equity characteristics and implications. In terms of social benefits and costs, beach retreat may actually be more economically efficient; however, this option will likely be viewed as highly unfair by people whose homes and businesses are lost to beach erosion and retreat.

The Trinidad case study has a very unusual property right structure, at least from a developed country perspective. The wetlands that were converted to agricultural production are actually publicly owned by the Trinidad and

Tobago government. However, private use rights to these wetlands are being commandeered by squatters, sometimes with certain types of public support (e.g., public water supplies and electricity). Thus, the situation is public ownership of wetlands with officially illegal, but loosely sanctioned private use rights, combined with public trust management of other wetlands not currently subject to agricultural production. This mix of public and private use and management with low enforcement of established public property rights governing wetlands surely results in economic inefficiency problems. In a developing nation such as Trinidad and Tobago, however, equity and humanitarian concerns make it difficult to enforce land and natural resource regulations that may reduce the availability of food to people with limited alternative sources of sustenance.

As a side note, a growing trend in the United States is the use of private land ownership with public use rights (easements) as a means of providing public environmental goods and services in a least-cost manner. For example, purchase of agricultural conservation easements, which restrict development, is becoming a popular means across the United States of conserving farmland and environmental amenities associated with farmland. Private ownership with public use easements may be a potential solution to at least some of the coastal resource management problems described in all of the invited-paper case studies.

### **Are the Proposed Coastal Resource Management Tools Economically Feasible?**

The institutions and property right structures in the Georgia, Louisiana, and Trinidad case studies all allow for government intervention to manage coastal land, beaches, and wetlands. The management tools under consideration are a state-owned and -operated recreational park (Louisiana), a state-owned and -operated ecotourism site (Trinidad), and beach nourishment and retreat (Georgia). The focus of each study was to examine the economic feasibility of the proposed coastal management tools.

### *Benefit-Cost Analysis*

Each case study examined the economic desirability of coastal management tools using a benefit-cost test. A standard net present value approach was used in the Georgia and Trinidad case studies. An income capitalization approach was used in the Louisiana case study. Each case study used the contingent valuation method (CVM) to measure net benefits to consumers of the management alternatives. The travel cost method (TCM) was also used in the Louisiana case study. Net benefits were measured by the CVM and TCM in terms of willingness-to-pay (WTP). Construction, operation, and maintenance costs were estimated in each case study using standard techniques. The opportunity costs of beach retreat were also measured in Georgia, for example, in terms of the value of buildings destroyed by beach erosion and retreat. In each case study, the CVM and TCM applications and benefit-cost analyses were well planned and implemented conceptually and empirically.

In each case study, benefit-cost comparisons suggest that the management tools considered pass the benefit-cost test; e.g., implementation would result in a Potential Pareto Improvement (PPI). However, the benefit-cost tests in each case study have limitations that should be noted. In the Georgia case study, disutility (costs) to people who prefer to "let nature continue to take away" beaches may be underestimated when considering the beach nourishment option. As discussed in the invited paper for this case study, some people with strong environmental preferences object to beach nourishment on ecological grounds. They prefer to "let nature take its course" and may actually have a negative willingness-to-pay for beach nourishment. In the Louisiana and Trinidad case studies, disutility (costs) to people who prefer more private development may be underestimated. For example, in the Louisiana study, people with strong private property preferences who may object to public purchase and ownership of Elmer Island may be underrepresented in the on-site and Internet sample. Similarly, in Trinidad, there may be people who would prefer that a private company take on the responsibility and expense of

operating an ecotourism site and enforcing their rights to continue doing so (e.g., against encroachment by agricultural producers and other development threats). In all the case studies, however, the survey process (e.g., sample selection) and modeling efforts (e.g., inclusion of nonnegative WTP responses only) may have resulted in underrepresentation or underestimation of negative preferences and values.

The Georgia, Louisiana, and Trinidad case studies all involve public coastal beaches and wetlands that are considered national resources. These public natural resources are held in trust for the citizens of the nation as a whole and should, therefore, be managed considering local, state, and national interests. This national perspective means that benefit-cost analysis of management actions impacting these resources should technically incorporate national preferences and values, as was done in the case of the Trinidad study. Another limitation of the Georgia and Louisiana benefit-cost analyses of management options is that only local and state preferences and values were explicitly considered. Thus, national interests and preferences with respect to the management of U.S. coastal resources were underrepresented. An additional limitation of the benefit-cost analyses in the Georgia, Louisiana, and Trinidad case studies was the lack of explicit consideration of ecosystem service values, such as the value of wetland and beach environments for fish and wildlife habitat and life-support. However, because theory and techniques for measuring ecosystem service values are still in the exploratory and testing phases, not dealing more explicitly with these values is not a fault of these studies; rather, ecosystem service valuation should be viewed as an area of needed future research.

### *Local Economic Impacts*

The question of economic desirability of a policy from a local, economic development perspective is concerned with the distributional effects of the policy; for example, comparing jobs created in Region A vs. jobs in Region B. The Georgia, Louisiana, and Trinidad case studies all claim that the proposed manage-

ment actions will be "good" for local economies measured in terms of expenditures, property values, jobs, and income (with beach retreat a probable exception). But, in a world of limited budgets, the question should be asked as to whether or not there are better economic development strategies; for example, ones that are more cost-effective with less unintended consequences. Also, assuming full-employment, a policy that creates jobs in one region of a state may reduce jobs in another region of the state. Or jobs created in one state (e.g., Louisiana) as a result of coastal management actions regions may result in a reduction of jobs in neighboring state (e.g., Mississippi). Such trade-offs suggest the need to consider the net economic development effects of coastal management actions from a state and national perspective.

#### **The Myth or Reality of Sustainable Coastal Development: Conclusions**

The economic valuation and feasibility analyses conducted in the Georgia, Louisiana, and

Trinidad studies suggest that in all cases, public finances are enough to conserve and manage the coastal resources needed for sustainable development. From a local, community development perspective, political and ecological sustainability seem more problematic. For example, as discussed in the Georgia study, different coastal management actions and the particular means for financing these actions, such as user fees or taxes, may be politically sensitive. Changing political power and institutions may hinder the social and political will over time to manage coastal resources via certain management tools. Development practices that insist on locating buildings and infrastructure as close to coastal beaches and wetlands as possible pose a fundamental challenge to sustainable coastal development. Wind, water, waves, and the lack of natural buffers continually erode beaches and wetlands, and our best technical efforts to turn back these forces of nature on the intensive margin of the human-nature interface may not be sustainable ecologically.