

# BEACH BUZZ

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"Keeping Our Beaches Bare"

## What is the "Value" of the Beach?

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Most people recognize that the ocean and coast contribute to the U.S. economy – whether it be through fishing, tourism, shipping, development or any number of commercial activities. But what is the value of spending a day at the beach, having wildlife and clean water at that beach or ensuring that the beach is there for your children or grandchildren to enjoy? Most economists agree that getting information on the shore's total economic value – both tangible (market) and non-tangible (non-market) variables – is vital for environmental managers making decisions on how best to use coastal resources. In other words, if we exclude non-market values from economic decision making, resources will not be allocated efficiently and social welfare will be reduced. Unfortunately, however, this information is often not readily available, if available at all.

Fortunately, the National Oceanic and Atmospheric Administration (NOAA) is contributing to a number of ongoing projects – in collaboration with states, universities and other federal agencies – ranging from outreach efforts to the coastal management community on concepts and methods of environmental valuation to supporting and actively performing environmental valuation

efforts pertaining to coral reefs, wetlands, marine parks, fisheries and water resources. As these efforts go forward, environmental managers will have more complete information regarding the total value of the nation's coastal and ocean resources.

### MARKET AND NON-MARKET BEACH VALUES

In addition to the tangible (market) values most commonly attributed to

for them to know it's there and healthy, and is not being polluted. This is also a legitimate value.

Over the last few years, environmental valuation has gained more exposure now that federal laws, court rulings and Executive Orders (as well as a plethora of state and local laws and regulations) increasingly require environmental managers to assess the total costs and benefits of proposed environmental management and policy initiatives.

Fortunately, economists have developed tools and methods to value non-market (as well as marketable) environmental assets, to quantify these values, and to add them up and include them in the cost benefit equations. As a result, we all have a much richer picture of the nature of the tradeoffs involved in environmental decision making.



beaches, there are also many non-tangible (non-market) values. For example, swimming and recreating, the aesthetics of an ocean view or being able to walk along a beach are all values people commonly associate with the beach. Likewise, each practical function of the beach – whether it's the habitat for some important species, acting as a barrier against storms and preventing the flooding of coastal properties – also has value. Another unique thing about the environment is that it may have a non-use value – valuing something simply because it exists. Many individuals may never visit or see the beach, but it may be important

### ECONOMICS 101

To understand environmental valuation, it is important to understand the meaning of "value" from an economist's point of view. Specifically, "value" means the maximum you are willing to give up of something that you have (usually it's in terms of dollars) to obtain something else. The net value of something is the difference between the maximum you would be willing to give up or pay, and what you actually have to pay to obtain it. This concept applies to anything, both market goods (e.g., purchasing a car, TV, or home) and non-market goods (i.e.,



what people are willing to give up in order to have a certain state of the environment). To find the total value of an environment resource, economists combine the value of resources that are bought and sold in the marketplace with the value of “non-market” resources, including those that impact market value (such as an estuary’s spawning grounds). The value of a beach would be what

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someone would be willing to pay to own the beach if they could own the beach and charge a price for its use. In 1989, for example, NOAA researches found that Santa Monica’s beaches had more than 12.5 million person days of beach use. The average person was willing to pay \$18.36 per person per day. Thus, an owner could have collected more than \$229.66 million from beach users in 1989 (12.5 million x \$18.36 = \$229.66 million). If we assume that beach use and the price per person day remain constant into the indefinite future and the interest rate that converts future dollars into present dollars is three percent, then someone would have been willing to pay \$7.65 billion ( $\$229.66 \text{ million} / .03 = \$7.65 \text{ billion}$ ) to own Santa Monica’s beaches. Thus, Santa Monica’s beaches are an asset just like any other asset, such as a house, that produces a stream of services for its owner over a long period of time. But because markets for beaches don’t exist, economists refer to these use values as non-market economic use values.

### **THE POWER OF NUMBERS**

Environmental valuation is an important new tool for coastal managers because cost-benefit analyses in the past often only took into account marketable (tangible) goods and services. The

following example clearly demonstrates the “value” of including non-market resources into environmental economic analyses.

### **DAMAGE ASSESSMENT OF THE TAMPA BAY OIL SPILL**

In 1993, a collision between two vessels – one of them a barge carrying heavy oil in Tampa Bay, Fla. – resulted in a massive oil spill that came ashore along a 13-mile coastline in Pineallas County, Fla. The beach was closed to residents and visitors until the clean up was completed. Under federal statute, the State of Florida sued the oil company for damages. A travel cost method (i.e., the random utility model) was employed to estimate the dollar impact (or damages) of the spill on residents who would normally have used the affected beaches, but incurred additional costs because they had to travel elsewhere.

The result was a settlement of \$2.5 million as compensation for the lost recreation services of the injured beaches, waterways and shellfish beds. Note that the settlement would have been a lot less if non-market values were not taken into account. In a related oil spill off Hunnington Beach, Calif., similar in magnitude to the Tampa Bay oil spill, another approach was used (i.e., “benefits transfer”) to value the beach losses, resulting in a jury award of \$11.42 million.

### **NOAA’S VALUATION EFFORTS**

Valuation efforts are underway in several parts of NOAA, namely by NOAA’s Chief Economist and the NOAA Coastal and Ocean Resource Economic Program:

#### **Education and Outreach to Coastal Planners and Managers**

NOAA’s Chief Economist – in partnership with Sea Grant programs – conducts a series of regional environmental workshops for state and local planners and managers, NGOs and the private sector on methods and techniques of applying environmental valuation to environmental management. Likewise, NOAA is supporting the publication of regionally specific

Environmental Valuation Guidebooks – that include economic and valuation concepts and tools, as well as case studies. To date, guidebooks have been completed for the Great Lakes and (in October of this year) for South Florida. A similar guidebook will soon be completed in New England, as well as a similar project getting underway related to Chesapeake Bay restoration efforts. The guidebooks will help coastal decision makers better understand what value people place on environmental resources, and how to take this into account in managing for sustainability.

#### **NOAA’s Coastal and Ocean Resource Economic Program**

NOAA’s Coastal and Ocean Resource Economics (CORE) Program conducts marine-related socioeconomic research for a wide variety of applications and geographic areas, including 1) 50 site specific beach valuation studies, 2) an extensive beach valuation effort in southern California, and 3) the first-ever

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nationwide estimate of participation rates in marine-related recreation activities:

- Public Area Recreation Visitors Survey: Between 1987 and 1992, the CORE Program, through a partnership with the U.S. Forest, has estimated the economic value of 50 beach sites from Maine to Washington. PARVS (now called CUSTOMER) was used in 1995-96 in a project entitled “Linking the Economy and Environment for the Florida Keys/Florida Bay” to estimate both the market and non-market economic values of recreational/tourist uses of the Florida Keys National Marine Sanctuary and the Florida Bay portion of Everglades



National Park.

- Southern California Beach Valuation Project: The CORE Program and NOAA's Damage Assessment Center have partnered with several California state agencies and the Santa Monica Bay Restoration Foundation in sponsoring the Southern California Beach Valuation Project to estimate the market and non-market economic value of beach use, but is also building an economic model to estimate how these values change with changes in beach user and beach characteristics, especially water quality.

- National Survey on Recreation and the Environment 2000: CORE Program staff also participate in a multiple federal agency project, the National Survey on Recreation and the Environment 2000. NSRE 2000 was the first time marine recreational activities, other than recreational fishing, have been included in a National Survey ("Marine recreation" was defined as participation in at least one of 19 activities/settings, including beach visitation, visitation to watersides besides beaches for outdoor recreation,

swimming, snorkeling, scuba diving, surfing, wind surfing, fishing, motor boating, sailing, personal watercraft use, rowing, canoeing, kayaking, hunting for waterfowl in a water-based surrounding, viewing or photographing birds in a water-based surrounding, viewing or

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photographing other wildlife in a water-based surrounding and viewing or photographing scenery in a water-based surrounding). The survey found that in 1999-2000, for example, more than 30

percent of the civilian non-institutionalized population 16 years and older visited a saltwater beach in the United States. This translated into an estimated 61.9 million participants, who undertook an estimated 853 million days of beach visitation. It is important to note that this project was funded by the NOAA Coastal Services Center and that other partners in the survey include the U.S. Forest Service, the USDA Economic Research Service, the U.S. EPA, and the U.S. Department of Interior's Bureau of Land Management.

In the future, NOAA will continue to support environmental valuation by coastal resource managers as part of its effort to increase general awareness of the economic benefits of the nation's oceans on state and local economies. Furthermore, environmental valuation facilitates an enhanced level of analysis, which ultimately contributes to more informed decision making regarding the management of the nation's ocean and coastal resources.

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