

The economic value of beaches – A 2008 update

By

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Houston (1995a; 1996; 2002) described the economic value of America's beaches. He noted that the travel and tourism industry is becoming increasingly dominant in economies throughout the world. However, few realize that travel and tourism is already America's largest industry, employer, and earner of foreign exchange; and beaches are its leading tourist destination. Although high-technology industries grab the news, the U.S. runs a trade deficit in these industries and high-technology jobs are increasingly "offshored" in today's world economy. Travel and tourism is difficult to offshore and is providing the economic growth, jobs, and foreign exchange that make the U.S. competitive in a world economy. However, tourists have choices in international tourism, and the U.S. has neglected tourism and infrastructure investments supporting tourism. This paper updates and lends support to the conclusions of Houston (1995a; 1996; 2002) on the economic importance of beaches to the national economy.

TRAVEL AND TOURISM IS LARGEST INDUSTRY AND EMPLOYER

Travel and tourism is the world's largest industry with the broad measure of economic activity, Travel and Tourism Economy (TTE), contributing \$5.4 trillion in 2007 to the world's Gross Domestic Product (GDP) (World Travel and Tourism Council 2007a) and exceeding the GDP of all countries other than the United States (International Monetary Fund 2007). Similarly, TTE contributes \$1.4 trillion to America's GDP (World Travel and Tourism Council 2007a). This is 10.2% of U.S. output (World Travel and Tourism Council 2007b) and makes TTE the largest contributor to GDP just ahead of durable goods manufacturing

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and retail trade that contribute 8.7% and 7.4% respectively to GDP (U.S. Census Bureau 2007a). TTE also produces \$104.9 billion in annual tax revenue for all levels of government in the United States (Travel Industry Association 2007).

Travel and tourism is both the world's and America's largest employer with TTE employing 231 million people throughout the world and 15 million people, or more than one out of every 9.7 people, in the United States (World Travel and Tourism Council 2007b). In contrast, all U.S. manufacturing industries from IBM to General Motors to Intel employ only 14.2 million people, having steadily lost 3.1 million jobs since 2000 (U.S. Department of Labor 2006). Although many states have policies to attract manufacturing industries, especially high-technology industries, few have policies to attract travel and tourism businesses. However, there are only about one-third as many high-technology jobs as travel and tourism jobs in the U.S.

and offshoring is increasingly taking place in high-technology industries (Associated Press 2007b). For example, the pharmaceutical industry is increasingly shifting its research and development to China and India (PRNewswire 2005). Dan Scheinman, senior vice-president for corporate development at Cisco System Inc, said, "We came to India for the costs, we stayed for the quality, and we're now investing for the innovation" (Business Week 2005). Microsoft's R&D lab in Beijing is cited as one of the world's most productive sources of innovation in computer graphics and language simulation (Business Week 2005).

Not only are manufacturing jobs in a long-term decline, but many service-sector jobs face "offshoring." Princeton economist Alan Blinder, who was vice chairman of the Federal Reserve during the Clinton administration, says the number of jobs at risk of being shipped out of the country could reach 40 million over the next 10-20 years (Associated Press 2007a). This means that one out of every three service-sector jobs could be at risk.

Travel and tourism is a rare industry where offshoring is difficult. There can be intense competition among countries for tourism, but if a tourist wants the tourist experience at Fisherman's Wharf, San Francisco, the tourist has to go to San Francisco. Travel and tourism may be ignored in the U.S. because of perceptions that this industry has low-wage jobs. However, U.S. per-capita wages for travel and tourism jobs average 13% higher than average U.S. per-capita wages (Holecek 1995). Switzerland provides a good example of high wages in tourism, since it depends on tourism more than any developed country yet has one of the world's highest per-capita incomes.

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TRAVEL AND TOURISM: KEY TO INTERNATIONAL COMPETITIVENESS

The U.S. is a major player in the international travel and tourism industry. International tourists, who represent 10%-15% of tourists in the U.S., spent \$108 billion in 2007 (U.S. Department of Commerce 2007). This is greater than the combined export value of U.S. agricultural grains, aircraft, computers, and telecommunications equipment (U.S. Census Bureau 2007b). The U.S. runs massive annual trade deficits of hundreds of billions of dollars, but travel and tourism is one of the few bright spots with a trade surplus of \$7.2 billion (U.S. Department of Commerce 2007) in 2006. This surplus is greater than the U.S. trade surplus of \$5.5 billion for all agricultural commodities (U.S. Department of Commerce 2006). The U.S. surplus in travel and tourism was \$26.4 billion in 1996, but U.S. policies that discourage international tourist visits and lack of competitive activities to attract international tourists have stalled visits. Americans take pride in U.S. high-technology industries, but the U.S. ran a trade deficit in high-technology goods of \$102 billion in 2006 (Associated Press 2007b). This deficit has doubled since 2000 with the U.S. being the largest importer of high-technology goods from China (Associated Press 2007b).

International tourists visiting the U.S. produced estimated tax revenues in 2006 of \$13.6 billion (U.S. Department of Commerce 2007 and U.S. Chamber of Commerce 2005). The U.S. Travel and Tourism Administration (abolished by Congress in 1996) published data showing the recipients of \$7.5 billion of tax revenues from international tourists in 1995 (U.S. Travel and Tourism Administration 1994). The majority of these tax revenues (53% or about \$4 billion) went to the federal government with state governments receiving 33%. Local governments that provided most of the tourist-support infrastructure received only 14.3% of the tax revenue. Assuming the federal government received the same percentage of taxes from international tourists in 2006 as 1995, the federal government received \$7.2 billion in taxes from international tourists in 2006.

**BEACHES: KEY TO U.S.
TRAVEL AND TOURISM**
Beaches are the key element of U.S.

travel and tourism, since they are the leading tourist destination (*USA Today* 1993; Carlson Wagonlit Travel Agent Poll 1998; Washingtonpost.com:Poll 2001; Chivas Poll 2001, TripAdvisor 2007, BusinessWire 2007). Coastal states receive about 85% of tourist-related revenues in the U.S. largely because beaches are tremendously popular (World Almanac 2007). Although there are many interior attractions from Yellowstone to the Grand Canyon and from Las Vegas to Branson, Missouri; the popularity of beaches dominates tourism. For example, a single beach location (Miami Beach) reported more tourist visits (21 million) than were made to any National Park Service property (Wiegell 1992; National Park Service 2007a). Miami Beach has more than twice as many tourist visits as the combined number of tourist visits to Yellowstone (2.9 million), the Grand Canyon (4.3 million), and Yosemite (3.2 million) (National Park Service 2007a). California beaches alone have more tourist visits (567 million) than combined tourist visits (272 million) to all 388 National Park Service properties - including national seashores and monuments and buildings such as the Lincoln Memorial, Washington Monument, and White House (King 1999; National Park Service 2007a). It is estimated that each year approximately 180 million Americans make 2 billion visits to ocean, gulf, and inland beaches (Clean Beaches Council 2007). This is almost twice as many visits as the combined 1.06 billion visits made to properties of the National Park Service (272 million), Bureau of Land Management (55 million), and all state parks and recreation areas (735 million) (National Association of State Park Directors 2007, Bureau of Land Management 2007). Moreover, many of these visits to state parks and recreation areas were visits to beaches. For example, state beaches in California account for only 2.7% of California state park holdings, but account for 72% of visits (King 1999). The 2 billion beach visits also dwarf the 138 million visitors to all theme parks in the U.S. including properties of Disney, Six Flags, Universal, SeaWorld, Busch Gardens, Paramount, Knotts Berry Farms, Hershey Park, Dollywood, and other theme Parks (Theme Park Insider 2005).

Beaches make a large contribution to America's economy. Beach tourism in Florida made a \$52 billion contribution to the economy in 2007 dollars

(Murley *et. al* 2003, U.S. Department of Labor 2007). Similarly, King (1999) shows that California beach tourism makes a total direct and indirect contribution of \$73 billion to the national economy. Multiplying the ratio of visitors to national beaches (2 billion) and visitors to California beaches (567 million) by the contribution of California beach visitors to the national economy (\$73 billion) in 1999 and adjusting for inflation yields an estimate that U.S. beaches currently contribute \$322 billion annually to the economy in 2007 dollars (Clean Beaches Council 2007, King 1999, and U.S. Department of Labor 2007). This is more than twenty five times the \$12 billion contribution of the National Park Service system to the national economy (National Park Service 2006). As was noted to be the case for foreign tourists, most taxes paid by beach tourists also flow primarily to the federal government. For example, a study of tourism at Huntington Beach, California, showed that the federal government is the main beneficiary of beach tourism with tourism at Huntington Beach generating \$135 million in federal revenues, \$25 million in state sales tax revenues, and \$4.8 million in local revenue sales tax and parking fees (King 1999).

ECONOMIC RETURN OF BEACH NOURISHMENT

Beach erosion is the No. 1 concern that beach tourists have about beaches (Hall and Staimer 1995). There are 33,000 kilometers of eroding shoreline and 4,300 kilometers of critically eroding shoreline in the U.S. Beach erosion is a serious threat to the nation's beach tourism and, therefore, a threat to the national economy (U.S. Army Corps of Engineers 1994). Restoring beaches through beach nourishment can greatly increase their attractiveness to tourists. For example, in 1989, 74 percent of those polled in New Jersey said the New Jersey shore was "going downhill." By 1998, only 27 percent thought the New Jersey shore was in decline with 86 percent saying that the shore was one of New Jersey's best features (Zukin 1998). The difference between 1989 and 1998 was construction of the beach nourishment project from Sandy Hook to Barnegat Inlet, New Jersey, which is the largest beach nourishment project (in terms of volume) in the world (U.S. Army Corps of Engineers 2001).

Houston (1996) cites beach nourish-

ment at Miami Beach as a good example of the economic benefits of beach restoration. Miami Beach had virtually no beach by mid-1970. As a result, facilities were run down, and Miami Beach was not the place to visit. Beach nourishment in the late 1970's rejuvenated Miami Beach and opened its beaches to the public. Beach attendance, based on lifeguard counts and aerial surveys, increased from eight million in 1978 to 21 million in 1983 (Wiegell 1992). Tourists now contribute \$11 billion annually to the economy (City of Miami Beach 2007). Almost 45% of these tourists are international tourists, and they contribute almost \$5 billion to the economy (City of Miami Beach 2007).

The \$5 billion annual contribution that international tourists make to the economy is almost 100 times the \$52 million cost of the Miami Beach beach-nourishment project that has lasted with minor maintenance over 30 years (Houston 1996). The capitalized annual cost of the project over its current 30-year life is about \$1.7 million. Stronge (2000) reports that half of Florida tourists are beach tourists. Assuming half of international tourists to Miami Beach are beach tourists, international beach tourists spend almost \$2.5 billion annually in Miami Beach. Using the capitalized annual cost of the Miami Beach project of \$1.7 million, this means that for every \$1 that has been invested annually to nourish the beaches at Miami Beach, the U.S. has earned about \$1470 annually in foreign exchange. This compares with a return of less than \$0.40 in agricultural-trade surplus (\$5.5 billion surplus in agricultural commodities 2006) for each \$1 of crop subsidy (\$20 billion in U.S. producer support in 2006 -- U.S. Department of Commerce 2006; Reuters 2006).

It is instructive to compare the federal investment in beach infrastructure (beach nourishment) versus federal tax revenues from tourists. From 1950-1993 the federal government and its cost-sharing partners spent an average of \$34 million (1993 dollars) annually on beach nourishment (U.S. Army Corps of Engineers 1994). The federal investment has increased since the mid-1990s and is approximately \$100 million a year (Marlowe 1999). A California study of beach tourism showed that beach tourism in California provides \$8.1 billion in tax revenues (California Department

of Boating and Waterways and State Coastal Conservancy 2002). If the estimated 2 billion national beach tourists pay proportionately similar taxes as the 567 million California beach tourists and the 11.2% inflation from 2002 to 2006 is considered, beach tourists paid federal taxes of about \$32 billion in 2006. Therefore, for every \$1 the federal government spends annually on beach nourishment (about \$100 million per year), it collects about \$320 (\$32 billion) in tax revenues from beach tourists.

With over seven times as many annual beach tourist visits (2 billion) as visits to all properties of the National Park Service (272 million), the recreational value of beaches is clear. However, the annual federal investment in beach maintenance of about \$100 million is less than 4% of the \$2.65 billion budget of the Park Service (National Park Service 2007b), which critics maintain is itself inadequate. The report "Endangered Rangers" by the National Parks Conservation Association noted that national parks are underfunded by \$600 million annually (National Parks Conservation Association 2004). Most Americans support increased funding for the National Park Service with 61% of those surveyed saying they would be willing to donate to the Park Service on their tax returns (National Parks Conservation Association 2005). Similarly, many beach visitors would agree with Congressman Frank Pallone Jr. from New Jersey, who noted, "In the same way we look at our national parks as a national treasure, we should look at our beaches as a national treasure" (*New York Times* 2007).

King and Symes (2003) assert that the U.S. Office of Management and Budget's (OMB) current policy limits the federal interest in California's beaches. They note that OMB believes visitors who decide not to attend California's beaches will spend their dollars elsewhere in the United States, creating no net economic or tax impact for the federal government. They examine OMB's assumption and determine there is a significant net loss to the state of California and the U.S. from a failure to maintain California's beaches. They surveyed 2719 households in southern California and extended the analysis to all California beaches. Since some of the 567 million visitor days per year include visits to piers and boardwalks, to be conservative, they estimated

that there were 232 million visitor days per year to California beaches. They estimated that if California beaches were unavailable for recreation, beach goers would instead spend about \$3.1 billion in other states and \$2.4 billion outside the United States. King and Symes (2003) use standard techniques from the U.S. government's Bureau of Economic Analysis to show that the unavailability of California beaches would produce an annual economic loss, including indirect and induced effects, to the California economy of \$8.3 billion and there would be a further loss of \$6 billion to the U.S. national economy. Further, they note that, "These are not economic impact estimates, but instead reflect the decisions of beachgoers to spend their money in other states and countries. Unlike economic impact estimates, where substitution is possible, these estimates represent a net loss to the U.S. and state economy." They note that the state of California and federal government would lose \$761 million and \$738 million respectively in taxes if indirect and induced effects are included. They obtained their estimate of the loss of tax revenues to the federal government by assuming the ratio of lost federal income tax to Gross Domestic Product (GDP) was 0.097, the ratio of lost corporate and excise taxes to GDP was 0.027, and they ignored social security taxes. With the annual federal cost of shore protection in California beaches being between \$12 and 18 million, for every \$1 of federal expenditures on shore protection for California, the federal government avoids tax losses of \$41 to \$62.

The conclusion by King and Symes (2003) that, "...a significant number of beach visitors would, in fact, travel outside of California and outside of the U.S. if there were no beaches in California" would hold true for beaches throughout the U.S. As a rough estimate, if we assume the tax loss to the federal government determined by King and Symes for California beach tourism (232 million beach visits) holds proportionately for national beach tourism (2 billion beach visits), the federal government would lose about \$6.4 billion in tax revenues from indirect and induced effects if beaches were unavailable due to erosion (\$738 million times 2 billion divided by 238 million). Moreover, under current OMB policy, beach restoration projects have to be justified solely on reduction

of storm damage with recreational benefits only considered incidental benefits. The inclusion of recreational benefits would produce large benefit/cost ratios.

WORLDWIDE COMPETITION FACING U.S.

Houston (1996) noted that travel and tourism's importance to world economies, employment, and international competitiveness has not been lost on America's economic competitors. Germany and Japan have outspent the U.S. in infrastructure investment for decades including spending freely to maintain their beaches as infrastructure investments. For example, Germany has spent about \$3.3 billion over 40 years on shore protection to protect a coastline less than 5 percent the length of the U.S. coast (Kellest 1992). This is about five times corresponding U.S. expenditures over the same period and about 25 to 50 times a greater share of GDP (Houston 1995b) – or 500 to 1,000 times the GDP per mile of coast. Japan's budget for shore protection and restoration has topped \$1.5 billion in a single year (Marine Facilities Panel 1991). This is more spent in a single year than the U.S. spent in over 40 years from about 1950 to 1990 (U.S. Army Corps of Engineers 1994). Spain with its extensive beaches is a major tourism competitor for the U.S. It conducted a five-year program to both restore existing beaches and build new ones and spent more than the U.S. has spent for beach restoration over 40 years (Ministerio de Obras Publicas y Transportes 1993).

U.S. BEGINNING TO LOSE LEAD.

In the early 1990s the U.S. was dominant in world travel and tourism. The U.S. Travel and Tourism Administration (1993) noted, "There is probably no country in the world that has a greater comparative advantage in tourism than the United States." *The Wall Street Journal* (1994) noted the U.S. domination of world travel and tourism, saying the U.S. receives over 45 percent of the developed world's travel-and-tourism revenues and 60 percent of its profits. However, when a new Congress swept in in 1996, it abolished the U.S. Travel and Tourism Administration, whose primary function was marketing U.S. tourism internationally. The National Oceanic and Atmospheric Administration (1998) noted as a result of the abolishment, "The U.S. is (the) only country in the developed world without a government-funded National Tourism Office and (it) bodes badly for

the country's future tourism growth."

The decline of the U.S. travel and tourism industry started playing out in earnest in the 1990s. America's share of the global inbound tourism market has dropped 35 percent since 1993. The U.S. has lost 18% of its international market share in just five years. The significant drop in international tourists has cost the American economy \$286 billion in the last 13 years including \$44 billion in 2005 (National Tour Association 2007).

There is a world economy in tourism that gives consumers ample choices and produces stiff worldwide competition for tourists. If Florida beaches become run down, German tourists can choose Spanish beaches. If Hawaiian beaches decline, Japanese tourists can choose Australia's Gold Coast. In fact, there is evidence that international tourists are shifting away from the U.S. Waikiki beaches are severely eroded, and the number of Japanese tourists visiting Hawaii is down 36% from 1997 to 2006 (Hawaii Department of Business, Economic Development, and Tourism 2006). In contrast, the number of international tourists visiting the restored beaches of Australia's Gold Coast has been increasing by about 5% annually (Tourism Queensland 2007).

This worldwide competition is well recognized outside the U.S. For example, Houston (1996) noted that in the mid-1990s the U.S. spent only \$16.3 million in advertising to its international tourist markets, and this compared to Spain's \$170 million in advertising (*Washington Post* 1995). The U.S. ranks 33rd in the world in international tourism advertisement, trailing Malaysia and Tunisia, (Brooks 1995), spending less than 4% of what Greece spends and 5% of what Spain spends (National Tour Association 2007). India spends four times as much advertising to international tourists than does the U.S. (National Tour Association 2007). Ireland spent 180 times more per capita on tourism advertisement than the U.S. (National Oceanic and Atmospheric Administration 1998). However, even this minimal U.S. spending of \$16.3 million on advertisement to international tourist markets was eliminated when Congress abolished the U.S. Travel and Tourism Administration in 1996. The U.S. currently has no nationally-funded tourism advertising while countries such as Australia, Canada, France, Greece,

Singapore, and Spain each spend \$100 million or more annually on international marketing (Brooks 1995; Hotel-online 1998; Balzer 1998).

THE FUTURE

The future of travel and tourism in the U.S. is not rosy as a result of its lack of investment. The U.S. ranks 133rd in the world in the growth of travel and tourism infrastructure investments (World Travel and Tourism Council 2007b). As a result, the U.S. ranks 127 in predicted international tourist growth from 2005 to 2014, lagging countries such as Burkina Faso, Bangladesh, and Laos that have few tourist attractions (World Travel and Tourism Council 2007b).

CONCLUSION

Travel and tourism is America's leading industry, employer, and earner of foreign exchange; and beaches are America's leading tourist destination. Few Americans realize that beaches are a key driver of America's economy and support U.S. competitiveness in a world economy. Perhaps Americans do not appreciate the importance of tourism to the national economy because 98 percent of the 1.4-million tourism-related businesses in the United States are classified as small businesses, and this makes the industry extremely fragmented (U.S. Travel and Tourism Administration 1995). Lacking national advertising from either this fragmented industry or a national travel office, the importance of travel and tourism to the national economy has not been communicated to the American people. The conclusion one draws today is the same as that noted by Houston (1995a), "Without a paradigm shift in attitudes toward the economic significance of travel and tourism and necessary infrastructure investment to maintain and restore beaches, the U.S. will relinquish a dominant worldwide lead in its most important industry."

REFERENCES

- Associated Press 2007a. "Factory Jobs: 3 Million Lost Since 2000," 20 April 2007. <http://www.breitbart.com/article.php?id=D8OKGR480&show_article=1>
- Associated Press 2007b. "U.S. tech trade deficit tops \$102B in '06," <http://www.usatoday.com/money/economy/2007-07-17-713215445_x.htm>
- Balzer, S. 1998. "Congress weighs \$100M dowry for U.S. tourism," *The Business Journal*, <<http://phoenix.bcentral.com/phoenix/stories/1998/08/17/story7.html>>
- Brooks, B. 1995. "Interview with Professor Robert Bryer, Florida State School of Business," *Florida State Times*, <<http://www.fsu.edu/~fstime/TS/issue2/issue1/qanda.html>>

- Bureau of Land Management 2007. "Recreation and Visitor Services." <<http://www.blm.gov/wo/st/en/prog/Recreation.1.html>>
- Business Week 2005. "A New World Economy, The balance of power will shift to the East as China and India evolve," 22 August 2005. <http://www.businessweek.com/magazine/content/05_34/3448401.htm>
- BusinessWire 2007. "Leisure Travel expected to Grow Despite Economic Challenges in Year Ahead According to 2007 National Leisure Travel Monitor." <<http://con.businesswire.com/releases/leisure/travel/pwweb531002.htm>>
- California Department of Boating and Waterways and State Coastal Conservancy 2002. "California Beach Restoration Study," January 2002, Sacramento, CA. <<http://www.dhw.ca.gov/PDF/Reports/BeachReport/FULL.pdf>>
- Carlson Wagonlit Travel Agent Poll, 1998. "Beach Blanket Bingo." <http://www.carlsontravel.com/About_Us/News_Release/9801/980625.htm>
- Chivas Poll 2001. "The best place to vacation is the beach." <http://www.chivas.com/poll/vacation_results.html>
- City of Miami Beach 2007. "Tourism Overview." <<http://www.miamibeachfl.gov/newcity/depts/econdev/visitors%20tofile.asp>>
- Clean Beaches Council 2007. "The Blue Wave Campaign, Promoting Clean and Safe Beaches." <<http://www.cleanbeaches.org/bluewave/bluewave.cfm>>
- Hall, C. and Stainer, M. 1995. "Concerns about the coast," *USA Today*, Page 1A, 9 August 1995.
- Hawaii Department of Business, Economic Development, and Tourism 2006. "hawaii.gov/dbed/info/visitor-stats/HAWAII_HISTORICAL_2006.xls">
- Holecek, D.F. 1995. "Tourism," Special Report 76, Michigan Agricultural Experiment Station, Michigan State University. <<http://www.msue.msu.edu/msue/imp/modse/04089576.html>>
- Hotel-online 1998. "Increased Pressure on National Promotional Budgets." <http://www.hotel-online.com/News/PressReleases/1998_4th/Nov98_PATA.html>
- Houston, J.R. 1995a. "The Economic Value of Beaches," *The CERCar, Coastal Engineering Research Center, Waterways Experiment Station, Vol. CER-95-4*, Dec 1995, 1-4.
- Houston, J.R. 1995b. "Beach Nourishment," Coastal Forum, *Shore & Beach*, 63(1), 21-24.
- Houston, J.R. 1996. "International Tourism & U.S. Beaches," *Shore & Beach*, 64(2), 3-4.
- Houston, J.R. 2002. "The Economic Value of Beaches - 2002 Update," *Shore & Beach*, 70(1), 9-12.
- International Monetary Fund 2007. <<http://www.imf.org/external/pubs/ft/weo/2007/02/weodata/index.aspx>>
- Kelletat, D. 1992. "Coastal Erosion and Protection Measures at the German North Sea Coast," *J. Coastal Res.*, 8(3), 699-711.
- King, P. 1999. "The Fiscal Impact of Beaches in California," Public Research Institute, University of San Francisco. <<http://online.sfsu.edu/~pgking/handouts/thefiscalimpactofbeaches.pdf>>
- King, P. and D. Symes 2003. "The Potential Loss in Gross National Product and Gross State Product from a Failure to Maintain California's Beaches," San Francisco State University. <<http://userwww.sfsu.edu/~pgking/pubpol.htm>>
- Marine Facilities Panel 1991. U.S. Japan Wind and Seismic Effects Panel, 17th Joint Meeting, Tokyo, Japan. J-(4), 1-9.
- Marlowe, H. 1999. "Assessing the Economic Benefits of America's Coastal Regions." <<http://www.coastalcoalition.org/facts/coastalregions.html>>
- Ministerio de Obras Publicas y Transportes 1993. "Recuperando La Costa," Serie Monografias, Centro de Publicaciones, Madrid, Spain.
- Murley, J.F., Alpert, L., Matthews, M.J., Bryk, C., Woods, B., and A. Grooms 2003. *Economics of Florida's Beaches. The Impact of Beach Restoration*, Florida Atlantic University.
- National Parks Conservation Association 2004. "Endangered Rangers." <http://www.npca.org/what_we_do/visitor_experience/endangeredrangers/>
- National Parks Conservation Association 2005. "New Poll Says 3 in 5 Would Donate to National Parks on their Federal Tax Returns." <http://www.npca.org/media_center/press_releases/2005/page-27600601.html>
- National Association of State Park Directors 2007. "State Park Facts." <<http://www.naspd.org/>>
- National Oceanic and Atmospheric Administration 1998. "Promotion of International Tourism to the United States." <http://www.yoto98.noaa.gov/yoto/meeting/tour_rec_316.html>
- National Park Service 2006. "Study: National Parks Huge Economic Return on Investment," 22 August 2006. <<http://home.nps.gov/applications/release/Detail.cfm?ID=685>>
- National Park Service 2007a. "2006 Recreation Visitors Ranked by Number of Visitors." <www2.nature.nps.gov/stats/ranked2006.pdf>
- National Park Service 2007b. "National Park Service Budget History." <http://home.nps.gov/applications/budget2/documents/ten_year_budget_history.pdf>
- New York Times 2007. "The Search for Sand is No Day at the Beach," 16 September 2007. <<http://travel.nytimes.com/2007/09/16/travel/16heads.html?pagewanted=print>>
- National Tour Association 2007. "The Case for a Cabinet-Level Tourism Department in the United States Federal Government." <http://www.nationline.com/doc_lib/caseforcabinetleveltourism.pdf>
- PRNewswire 2005. "Cost-effective R&D Outsourcing Attracts Global Pharmaceutical Industry to India and China." <<http://www.prnewswire.co.uk/cgi/news/release?id=152432>>
- Reuters 2006. "Green pay, Not Crops Subsidies, US Activists Ask," May 9, 2006.
- Stronge, W.B. 2000. "The Economic Benefits of Florida's Beaches: Local, State and National Impacts." <<http://www.coastalcoalition.org/ACC/articles/stronge.htm>>
- Theme Park Insider 2005. "Disney Slams Universal in 2005 Theme Park Attendance." <<http://www.themeparkinsider.com/flume/2005122/>>
- Travel Industry Association 2007. Return on Investment. <<http://www.tia.org/pressmedia/TWFAroi.html>>
- TripAdvisor 2007. "TripAdvisor Survey Reveals Soaring Fuel Costs Won't Slow Travelers Down This Summer." <http://www.tripadvisor.com/PressCenter-482-c1-Press_Releases.html>
- U.S. Army Corps of Engineers 1994. "Shoreline Protection and Beach Erosion Control Study, Phase I: Cost Comparison of Shoreline Protection Projects of the U.S. Army Corps of Engineers," Water Resources Support Center, Washington, D.C., USA.
- U.S. Army Corps of Engineers 2001. "Sandy Hook to Barnegat Inlet, New Jersey Beach Erosion Control Project." <<http://www.nan.usace.army.mil/business/prjlinks/coastal/seabrite/index.htm>>
- USA Today 1993. "More plan vacations this year," Page D1, 17 March 1993.
- U.S. Census Bureau 2007a. "The 2007 Statistical Abstract, Gross Domestic Product in Current and Real (2000) by Industry." <<http://www.census.gov/compendia/statab/tables/07s0649.xls>>
- U.S. Census Bureau 2007b. "Exports of Goods by End-Use Category and Commodity." <http://www.census.gov/foreign-trade/press-Release/2006pr/final_revisions/exh6.txt>
- U.S. Chamber of Commerce 2005. "Impact of Travel & Tourism on the U.S. and State Economies." <<http://www.supporttravel.com/portals/travelreport/uskey.htm>>
- U.S. Department of Commerce 2006. "U.S. International Trade in Goods and Services, December, 2006." <<http://www.bea.gov/newsreleases/international/trade/2007/pdf/trad1206.pdf>>
- U.S. Department of Commerce 2007. "U.S. International Travel and Tourism Balance of Trade." <http://inet.ita.doc.gov/outreach/pages/inbound.total_intl_travel_spending_1996-2006.html>
- U.S. Department of Labor 2006. Bureau of Labor Statistics, "NAIC 31-33: Manufacturing." <<http://www.bls.gov/iag/manufacturing.htm>>
- U.S. Department of Labor 2007. Bureau of Labor Statistics, "Inflation Calculator." <<http://www.bls.gov/cgi>>
- U.S. Travel and Tourism Administration 1993. "World Tourism at the Millennium," U.S. Department of Commerce, April 1993, 97 pp.
- U.S. Travel and Tourism Administration 1994. "Impact of International Visitor Spending on State Economies," U.S. Department of Commerce, December 1994.
- U.S. Travel and Tourism Administration 1995. "Travel Outlook Forum, Forging New Strategies in Tourism Research," U.S. Department of Commerce, 17 October 1995.
- Wall Street Journal 1994. "The Other American Dream Team," 15 February 1994.
- Washington Post 1995. "Chefs Bemoan a Reduction in Their Favorite Deduction," Page D4, 11 April 1995.
- Washingtonpost.com: Poll 2001. "Where do you like to spend your spring vacation." <www.washingtonpost.com/wp-dyn/education/kidspost/poll/>
- Wiegel, R.L. 1992. "Dade County, Florida, Beach Nourishment and Hurricane Surge Study," *Shore & Beach* 60(4), 2-26.
- WorldAlmanac 2007. Funk & Wagnalls Corp., Mahwah, New Jersey.
- World Travel and Tourism Council 2007a. "Executive Summary, The 2007 Travel and Tourism Economic Research." <<http://www.wttc.travel/bin/pdf/temp/executivesummary2007.html>>
- World Travel and Tourism Council 2007b. "The 2007 Travel and Tourism Economic Research." <http://www.wttc.travel/bin/pdf/original_pdf_file/world.pdf>
- Zukin, C. 1998. "The Shore - Looking up (Save the Beach Passes), The Star-Ledger/Eggleton-Rutgers Poll." <http://sleep.rutgers.edu/releases/119_3.htm>

Sandbags, Groins and the North Carolina's Struggle for a Comprehensive

Beach Management Strategy

This presentation would focus on the policy trade-offs between the use of hard and soft erosion control structures as the State of North Carolina manages significant development along its coast. The State has banned hardened structures since 1985 but has allowed the use of sandbags on a temporary basis. Since that time, the State has permitted approximately 370 sandbag structures. Many of these sandbag structures remain in place despite the expiration of the permits.

The State allows the use of sandbags to give property owners time to move their structure, time for the beach to recover or time for the community in which the property is located to complete a beach nourishment or inlet project. Nearly all property owners with sandbags have chosen not to move their homes in the hope that their community will conduct a beach nourishment project or inlet relocation project.

Environmental groups and the media have complained about the use of sandbags as unsightly and impeding public access. Most of the chronic erosion exists in inlet areas. The legislature is considering a bill which would allow the use of a terminal groin in an inlet area on a pilot project basis. Such use would be a departure from the State's ban on hardened structures, and consequently, has received significant public attention.

The Coastal Resources Commission, which oversees development regulations at the coast has a difficult set of choices. It can adopt new rules on sandbags, granting more time for communities to carry out projects, enforce the sandbag deadlines and face potential lawsuits, or support the use of hardened structures and incur the wrath of environmentalists.

Some policymakers in North Carolina recognize the connection between sandbag use, beach nourishment and hardened structures. They see that sandbags can only be temporary if communities address erosion through beach nourishment or hardened structures. Beach nourishment does not provide an easy solution as more communities chase limited federal funds. Consequently, local governments are increasingly pursuing local projects and urging the legislature to create a dedicated funding source at the state level.

This paper will propose a regulatory framework that encourages communities to develop and implement a long-term beach management strategy. Such a strategy would align the use of sandbags with funding and timeframes for beach nourishment or inlet projects. It would provide for periodic review by State regulators of such strategies to ensure implementation. It would also allow the use of hardened structures on a limited basis if shown to be an effective alternative to temporary erosion control structures.