

Don't Rig Our Coastal Economy



The Threat from Offshore Drilling



Introduction

Our coasts are now facing more threats than they have in almost three decades. The vast majority of America's coastline, once protected, is now actively being pursued for development by the oil and gas industry. New offshore drilling would jeopardize our beaches, coastal environments, and booming tourism economy.

While only a handful of big oil companies stand to profit from drilling our coasts, all Americans stand to profit from keeping our beaches clean, healthy and pristine.

Tourism is a vital part of our nation's economy, and beaches are an essential piece. According to the World Tourism & Travel Council, in 2009 alone the United States travel and tourism economy is expected to directly and indirectly produce 13.8 million jobs and generate \$1.35 trillion.¹ That makes America's coastal recreation and tourism industry the second largest employer in the nation, workers who serve the 180 million Americans who make over 2 billion trips to our coasts every year. Tourism in America is a trillion-dollar industry with coastal communities contributing over \$700 billion annually to our economy².

These valuable beaches and coastlines will be forever changed if industry is given a green light to drill. Oil and gas rigs would deter tourists from visiting coastal communities, would stress wildlife, and would threaten to contaminate the waters where American families swim, boat, and fish. The risk to our coastal economy from offshore drilling is just too great.

But our coasts are not solely about jobs. Millions of Americans share fond childhood memories of building sandcastles, learning to ride a wave, fishing, or watching seabirds, dolphins and whales at the beach. Each year, families from all over the world flock to our



beaches to continue this tradition. This summer, given the state of the economy, we can expect even more families to keep their vacations local and head for the beach.

Our coasts and marine waters provide the economic lifeblood for thousands of tourism and fishing communities, generating billions of dollars and sustaining millions of jobs. In addition to being a favorite American vacation destination, beaches provide a sanctuary for fish and wildlife and are a critical part of America's natural heritage—from sea to shining sea. But these coasts are in jeopardy.

¹ World Travel and Tourism Council

² Houston, James R. (2082). The Economics Value of Beaches. U.S. Army Engineer Research and Development Center.

Big Oil, which continues to experience record profits, has teamed up with industry lobbyists and allies in Congress to push their agenda and sacrifice our coasts for their financial gain.

If we want to see what our coasts will look like if the oil industry has its way, we have to look no further than Alabama, Louisiana, Texas, and Mississippi. For years, coastlines in these states did not enjoy the same protections from drilling as beaches in the rest of the country. As a result, the oil industry was able to leave its ugly mark. Years of wear and tear from oil operations have destroyed many coastal wetlands of the Louisiana Bayou. Thanks in large part to drilling, Louisiana is losing 25 square miles of coastal wetlands each year. These wetlands once provided a natural barrier from storms like Hurricane Katrina.

There is a stark contrast between the waters of the Gulf coast and those beaches where there is no drilling. Off the coasts of Maine and South Carolina, the horizons are limitless and clear. On the Outer Banks of North Carolina, tourism thrives without the threat of oil spills. And in the Florida Keys, visitors don't have to worry about oil pipelines crisscrossing their beaches. In California, where oil drilling is limited, the coastline from Mendocino to Santa Barbara provides a haven for migrating birds, wildlife, and vacationing families.

THE IMPACTS OF DRILLING BEACHES

Our favorite destinations—from the rocky shores of Maine to Virginia Beach and Florida's Gulf Coast—will be forever altered if they are exposed to the oil and gas industry. Drilling off of our sensitive coasts would do little to lower gas prices or make us more energy independent, but it would threaten our beaches with pollution and potential oil spills, and would eat away at our billion-dollar tourism and fishing industries.

Pollution and oil spills

Big Oil's track record with offshore drilling is ugly. Offshore operators have had 40 large scale spills (greater than 42,000 gallons) since 1964. Thirteen of those have been in the past 10 years alone. And those are just the biggest spills³; smaller spills are still an everyday occurrence, and continue to impact our coastlines.

Offshore operations are especially vulnerable during hurricanes, a very real threat where the majority of oil drilling occurs. Of the 13 major spills in the past 10 years, 7 have been hurricane-related. In August, 2005, during Hurricane Katrina, more than 9 million gallons of oil spilled from pipelines, storage tanks and industrial plants.⁴

Oil is extremely toxic to marine life such as birds, fish, seals, and whales. Once they happen, oil spills cannot be reversed and current cleanup methods are incapable of removing more than a small fraction of the oil spilled in ocean waters. Additionally, there is strong evidence that oil actually becomes *more toxic* over time as it slowly

³ U.S. Minerals Management Service, <http://www.mms.gov/incidents/spills1996-2008.htm>

⁴ *Houston Chronicle*. "Industry Says There Was No Way to Prepare for Spills." 13 November 2005.

degrades in the environment. Often, the last compounds to degrade are those that are known human carcinogens.⁵

According to the National Academy of Sciences, a single well produces between 1500 and 2000 tons of waste material. Debris includes drill cuttings, which is rock ground into pieces by bit, and drilling mud brought up during the drilling process. This mud contains toxic metals such as lead, cadmium, and mercury. Other pollutants, such as benzene, arsenic, zinc and other known carcinogens and radioactive materials are routinely released in “produced water,” which emerges when water is brought up from a well along with the oil or gas.⁶



Threats to wildlife

America’s coasts make up a mosaic of sea grasses, wetlands, estuaries, beaches, and dunes. Offshore drilling is simply not compatible with this fragile ecosystem.

Take the Gulf of Mexico, for example. It is home to more than twenty species of marine mammals, four species of shark, seven species of tuna and five species of sea turtle. All five turtle species found in the Gulf are either endangered or threatened, and are more vulnerable to the adverse impacts of drilling in their habitat. The Gulf is the heart of one of the most important bird migration corridors in the world, and is traveled by hundreds of species of birds each year⁷. Offshore oil rigs interfere with migratory routes, spawning, and feeding areas. The pollution and routine spills associated with drilling also destroy critical nesting areas and make fishing more difficult for birds.⁸ In addition to migratory birds, the eastern Gulf of Mexico supports large populations of brown pelicans and bald eagles.

When oil reaches shallow waters, it picks up sand, and sinks as a result. On the sea floor, the oil persists for a long time, threatening the filter feeders such as shellfish and mussels and everything that eats them, including humans. Additionally, every time a storm churns up the water oil is released out of the sand again.⁹ Many refuges, national seashores and protected areas around our country have been put in place to protect some of our most endangered species. Even these areas, however, are threatened by drilling as

⁵ Springman, Kathrine. Testimony given before the House Subcommittee on Energy and Mineral Resources and the Subcommittee on Insular Affairs, Oceans and Wildlife. March 24, 2009.

⁶ Minerals Management Service. Gulf of Mexico OCS Oil and Gas Lease Sale 181, Draft Environmental Impact Statement (DEIS), p. IV-32-33.

⁷ Deepwater Gulf of Mexico Environmental and Socioeconomic Data Search and Literature Synthesis. Volume I: Narrative Report. 2000. Minerals Management Service.

⁸ Interactions Between Migrating Birds and Offshore Oil and Gas Platforms in the Northern Gulf of Mexico. Final Report. 2005. Minerals Management Service.

⁹ BBC News. “Oil Spill: Consequences for Wildlife.” November 19, 2002. <http://news.bbc.co.uk/2/hi/science/nature/2491965.stm>

spills and pollutions are not localized events, but rather travel far and wide in ocean currents.

Oil and global warming

The search for dirty energy also contributes to another threat to our beaches: global warming. Pollution produced by oil and gas accelerates the greenhouse effect, which is causing our planet's temperatures to rise.

Scientists predict that even a modest rise in temperatures—two or three degrees—could destroy one-fifth of the earth's coastal wetlands. If temperatures continue to climb and ice shelves in Greenland and Antarctica collapse, sea levels could rise by 20 feet or more, submerging our beaches and coastal communities. In addition to forever altering our coastal landscape, this rise in sea levels will necessarily hurt the coastal tourist economy by driving visitors away from beaches.¹⁰ There is no reason to threaten these coastal economies and environments with dirty drilling while we could be investing in clean, safe alternatives. Clean energy can protect our coasts while creating jobs.

As part of our Resilient Habitats campaign, Sierra Club staff and volunteers are working at the local, state, federal and international level to develop science-based solutions that secure a future for fish, wildlife, and the \$120 billion economy that depends on them.

We understand that climate change is already taking a toll on America's natural heritage. Bird migrations are becoming more unpredictable, numbers of caribou, moose, and bighorn sheep are dwindling in some regions and fish kills resulting from rising water temperatures are becoming more common. According to the U.S. Fish and Wildlife Service, "the warming of the earth could potentially have more far reaching impacts on wildlife and wildlife habitat than any challenge that has come before us."

Volunteers and staff are working in coalition with hunters and anglers, faith communities, organized labor and other allies to make sure that preserving habitats from the stresses caused by climate change is a priority. Our coastal ecosystems are one of the most important—and threatened—of all America's habitat.

THE ECONOMIC BENEFITS OF OUR BEACHES

America's beaches are a powerful workhorse for our national economy. Although coastal areas make up less than one-fifth of the land area of the contiguous 48 states, they account for more than half of the nation's population and housing supply. By 2008 it was estimated that approximately half of the U.S. population, 160 million, would live in 673 coastal counties, including the Great Lakes.¹¹



¹⁰ Nick Liv. *The Economic Impacts of Climate Change on Beach Recreation in North Carolina*. Appalachian State University, Boone NC.

¹¹ Environmental Protection Agency. "Analyses of the Effects of Global Change on Human Health and and Welfare and Human



Annual tourist visits to all of America's federal and state parks, recreational areas, and public lands combined still do not match visits to our beaches. This means that in the minds of vacationers, beaches far outweigh even our most iconic destinations such as Yellowstone National Park, Disneyland, or Las Vegas. Coastal states receive about 85 percent of the nation's total tourism revenue--largely because of the popularity of beaches.¹² They are far and away the biggest draw for both domestic and foreign tourists.

Fishing

Aside from tourism, coastal economies are often heavily reliant upon commercial and recreational fishing. This industry has provided a way of life in this country for centuries. But offshore drilling threatens to destroy it. Take Florida, for example. Florida's expansive coastline provides diverse and rewarding saltwater fishing for recreational anglers. The popularity of recreational fishing has grown steadily over the past several decades. Money spent by anglers has boosted the local, state and national economies. Visiting anglers sustain old jobs and create new ones. They support manufacturers, suppliers, and service industries. The total economic output of the recreational saltwater fishing industry is substantial and supports an extensive number of full and part-time jobs. Aside from tourism, coastal economies are often heavily reliant upon the fishing industry.

U.S. commercial and saltwater fishing generates approximately \$185 billion in sales annually and supports over two million jobs. The commercial fishing is the bulk of this, generating \$103 billion in sales, \$44 billion in income, and supporting 1.5 million jobs. Recreational fishing, is no small contributor, however, generating \$82 billion in sales, \$24 billion in income, and supporting 534,000 jobs.¹³

Pollution and spills from oil and gas rigs can harm fish stocks, but so can other activities associated with off shore drilling. Following seismic activity, anglers and commercial fisherman saw a dramatic drop in the number of fish eggs, adult fish, and shellfish larvae in the area. Trawl catch declined from 50 to 70 percent, and long line catch declined by 44 percent. This was especially alarming because of the endangered status of some

Systems. 2008. Quoted at: <http://www.researchrecap.com/index.php/2008/07/18/climate-change-to-have-significant-effects-on-us-health/>

12 Houston, James R. (2002). «The Economic Value of Beaches». U.S. Army Engineer Research and Development Center. http://www.jerseyshorepartnership.com/artman/publish/article_251.shtml

13 NOAA Fisheries: Office of Science & Technology. "Fisheries Economics of the U.S., 2006. http://www.st.nmfs.noaa.gov/st5/publication/economics_communities.html

populations, and because of the fish's inability to detect and avoid damaging low-frequency noise caused by seismic shooting.

Coastal Economies

The importance of coastal economies to our nation cannot be underestimated. And a large portion of the revenue generated comes from tourism. The United States has world-renowned beaches and coastlines that would be threatened or severely altered by offshore drilling. Some of our best coastal economies include:

Florida

Home to 825 miles of beach, Florida is one of the world's favorite vacation spots.¹⁴ The state's sandy coastline serves as a gateway to the Atlantic Ocean, the Gulf of Mexico, and the Straits of Florida, and is one of Florida's most valuable resources. More than 12 million people—77 percent of the state's population-- live in Florida's coastal communities.

Florida's coastal economy contributes over \$550 billion, or 79 percent of the state's economic productivity. This represents close to 6 million jobs.¹⁵ The state's ocean economy ranks second in the nation, behind only California.

The resilience of Florida's beaches has already been tested once by a major oil spill. In 1993, three tankers collided at the entrance to Tampa Bay. This resulted in 300,000 gallons of heavy oil and 33,000 gallons of jet fuel being spilled into the water. It tarred 13 miles of beach in Pinellas County. This spill came only a year after Pinellas County drafted up an exhaustive account of how a major oil spill would affect their tourism revenue. That report estimated that such a spill would devastate many of the state's best beaches. Over the course of two years, it estimated that the county would see a 45.2 percent drop in tourism. This would account for an almost \$5 billion dollar loss to the county's GDP (2008 dollars).¹⁶

Oregon

Oregon's coast is a signature landscape and important scenic and recreational resource for residents and visitors alike. The coast is known for its wildlife, evergreen forests, haystack formations, and rugged cliffs. Because Oregon law prohibits private ownership of coastal land, all 362 miles of the state's beaches are protected as public land.¹⁷ This fact alone indicates the enormous significance and importance that the coasts have to Oregon's livelihood. Offshore drilling in Oregon would compete with the state's thriving tourist economy, which overall produces an estimated \$8.3 billion a year.¹⁸

14 Murley, James, Lenore Alpert, William Stronge. (2005). *Tourism in Paradise: The Economic Impact of Florida Beaches*. 14th annual Biennial Coastal Zone Conference.

15 Florida Oceans and Coastal Council, "Florida's Ocean and Coastal Economies Report, Phase II." 2006. http://www.dep.state.fl.us/secretary/news/2008/10/files/1001_02.pdf

16 "Impacts of a Major Oil Spill on the Tourism Industry of Pinellas County: A Recovery Scenario Analysis." Prepared by Research Data Services, Inc. for the Pinellas County Board of Commissioners and the Pinellas Suncoast Convention and Visitor Bureau. 1992.

17 Rules and Regulations. Oregon Parks and Recreation Department.

18 "Oregon, Tourism and Hospitality: Driving Economic Growth." 2008.

A large portion of these dollars are generated by coastal counties as thousands of Americans visit Oregon's beaches to hike, fish, cycle, surf, boat, and watch whales. Coastal tourism in the state generates \$1.5 billion in sales and sustains close to 22,000 jobs.¹⁹

Commercial fishing is another key piece of Oregon's economy. In 2006, commercial fisheries generated over \$421 million in personal income.²⁰ During the same period sport fishing generated around \$330 million in earnings, resulting in over \$1 billion of economic activity.²¹

California

California's coast stretches for 840 miles and comprises of everything from rugged cliffs to sandy beaches. Stretches of it are iconic the world over and its ocean economy is the largest and most vibrant in the nation.

California's beaches are the most visited tourist attraction in the state. Its wide variety of shorelines, rocky outcroppings, and pristine beaches beckon droves of people by the millions. By some estimates, coastal tourism contributes as much as \$94 billion to California's economy and supports over 900,000 jobs.²² Of this, beach tourism is expected to generate \$14 billion in direct revenue.²³ Around \$5 billion goes directly to the state in the form of taxes which provide crucial services.

New Jersey

New Jersey's beaches are among the most stunning on the East Coast. As a result, resort towns like Ashbury Park, Cape May, and Atlantic City draw millions of visitors each year²⁴. In fact, thirty million New Jersey residents live within a two-hour drive of the coast.²⁵ and more than 60 percent live within 25 miles of the shoreline. Revenues linked to these coastal areas make up the largest sector of the state's economy. Visits to New Jersey's beaches support nearly 500,000 jobs, and one out of every six of the state's jobs are linked in some form to its shoreline. Visits to the area generate \$16.6 billion in wages and add \$5.5 billion to the state's tax coffers.

<http://industry.traveloregon.com/upload/otc/departments/tourismdevelopment/finaldrivingeconomicgrowth.pdf>

19 "Oregon, Tourism and Hospitality: Driving Economic Growth." 2008.

<http://industry.traveloregon.com/upload/otc/departments/tourismdevelopment/finaldrivingeconomicgrowth.pdf>

20 Prepared for Oregon Department of Fish and Wildlife. "Oregon Marine Recreational Fisheries Economic Contributions in 2006."

p. 20, 2007. http://www.oczma.org/pdfs/ODFW%20Marine%20Rec_effects%202006.pdf

21 American Sportfishing Association. "Sportfishing in America." p. 8, 2008.

<http://www.asafishing.org/asa/images/statistics/resources/Sportfishing%20in%20America%20Rev.%207%2008.pdf>

22 Nava, Pedro and Carl Pope. "Protecting California's Coasts." 2009.

http://www.californiaprogressreport.com/2009/04/protecting_cali_2.html

23 Kildow, Judith. "California Ocean Economy: Report to the Resource Agency, State of California: Prepared by the National Ocean

Economics Program, July 2005. p.109

24 2005 New Jersey Tourism Economic Impact Study. <http://www.state.nj.us/travel/pdf/2006-07-tourism-ecom-impact.pdf>

25 Marlowe, Howard. Assessing the Economic Benefits of America's Coastal Regions. Trends and Future Challenges for U.S. National Ocean and Coastal Policy

New Jersey's famous shore has also been tested before. During the summer of 1988, a period often referred to as the Syringe Tide, medical waste and raw garbage washed up onto a 50-mile stretch of the coast. Tourism dropped off significantly and the area lost at least \$1 billion.²⁶ An oil spill off the coast of New Jersey could trigger an even more dramatic decline in tourism.

Georgia

Tourism is the second largest industry in Georgia. It adds \$34 billion to the economy generated by 61.7 million visitors. This employs some 241,000 Georgians.²⁷ And at the top of the list for many of those visitors are Georgia's gorgeous beaches, some of the most unique in the nation. The state's 100 miles of coastline are protected by 13 barrier islands — The Golden Isles of Georgia--that safeguard the mainland from storm surges and tidal action. Behind the islands, expansive salt marshes provide a haven for oysters, clams, and young shrimp, crab and fish, and protect the shoreline from erosion. They also serve as nature's purification system, filtering pollution and toxins out of the water. Ranging across 375,000 acres, Georgia's salt marshes account for one-fourth of the remaining salt marshes in the eastern United States.

South Carolina

Like Georgia, South Carolina's beaches are all on barrier islands or former barrier islands that have migrated onto the mainland. Frequent hurricanes in the area have helped shape the state's dramatic coastline. Only seven counties comprise the coast but those counties contain nearly a quarter of the state's population—around one million people. The coast is not popular only for residents, however, but for the large number of tourists that frequent its shores. Statewide, tourism contributes \$9.4 billion to the GDP and supports over 200,000 jobs.²⁸ Famed Myrtle Beach accounts for 40 percent of this revenue by itself.²⁹

Virginia

Virginia's beaches and marine waters boost the state's economy, protect residential areas from storms, and offer a relaxing retreat to thousands of vacationers each year. In 2007, visitors to the state spent \$18.7 billion which provided \$1.2 billion in state and local taxes. The industry supports 210,000 jobs.³⁰ In Virginia Beach alone visitors spent \$890 million in 2007, contributing to approximately \$1.44 billion in economic output.³¹

²⁶ "One the Jersey Shore, A Summer to Forget." New York Times. September 2, 1988.

<http://www.nytimes.com/1988/09/02/nyregion/on-the-jersey-shore-a-summer-to-forget.html>

²⁷ Georgia Department of Economic Development

<http://www.georgia.org/GeorgiaIndustries/Tourism/Resources/Pages/default.aspx>

²⁸ South Carolina Budget and Control Board, Office of Research and Statistics, "South Carolina Statistical Abstract 2005," November 2005.

²⁹ Travel Channel, Fodor's Guides - South Carolina Coast.

<http://travel.discovery.com/destinations/fodors/southcarolinacoast/overview.html>

³⁰ Compiled by Travel Industry Association of America for the Virginia Tourism Corporation

<http://www.virginia.org/pressroom/tourism.asp>

³¹ Zielinski, Danielle. "Virginia Tourism Reflects National Economic Struggles." October 6, 2008.

Virginia also has a robust fishing economy. Sportfishing, for example, contributes over \$1.3 billion to the economy and supports more than 15,000 jobs.³²

North Carolina

North Carolina is unlike any other coastal state. It has two separate shorelines—an inner coast, made up of protected estuaries, and an outer coast, where waves break on sandy shores. The inner coast is key to the state’s economy. Ninety percent of the commercial seafood species caught in the state spend some portion of their lives in inner coast estuaries.

North Carolina’s barrier islands shelter the shallow waters of its great bays and sounds. They comprise the second largest estuary in the nation, after the Chesapeake Bay.

While agriculture and manufacturing are the major industries of the state of North Carolina, for the coastal region the most important economic activity is tourism.

The truth about offshore drilling: It won’t solve our energy problems

In the Annual Energy Outlook 2007, the Energy Information Administration conducted a case study to determine the effects that drilling for oil on the outer continental shelf would have on oil consumption. They found that at peak production in 2025, drilling areas currently off limits would only produce less than one percent of daily demand.

In the Energy Information Administration's own words, the impact of drilling the outer continental shelf would be “insignificant.” In contrast, raising fuel economy standards to at least 35 mpg in 2020 will save 1.1 million barrels of oil every day – saving several times more oil than we would get from the outer continental shelf.



Secretary of the Interior Ken Salazar recently commissioned an inventory of the resources of the outer continental shelf. The findings of that report overwhelmingly showed the relative lack of oil. Drilling anywhere on the outer continental shelf will not solve the problem of high natural gas prices. Drilling simply takes too long to develop a natural gas field to impact prices in the short term (1-3 years). And there isn’t enough gas in the areas that are currently protected from drilling to impact gas prices in the long run. The effect would be so small that it would likely be lost in normal marketplace fluctuations, or would be overshadowed by catastrophic events like Hurricane Katrina.

<http://www.america.gov/st/usg-english/2008/October/20081006102754abretnuh0.2258112.html>

³² American Sportfishing Association. 2008.

<http://www.asafishing.org/asa/images/statistics/resources/Sportfishing%20in%20America%20Rev.%207%2008.pdf>

Smart Energy Solutions

Offshore oil and gas drilling is the slowest, dirtiest, and most expensive way to produce energy. Opening our coasts to destructive drilling will do little to lower prices or make us more energy independent, but it will threaten our beaches with pollution and potential oil spills and will put our billion-dollar tourism and fishing industries at risk.

We can end our dependence on dirty power by using clean, safe, and affordable renewable energy, like the sun and the wind. We can transform how we produce electricity. These cheaper, cleaner, faster, and safer energy solutions will start saving consumers and businesses money today and will protect our beaches, marine waters, and coastal economies for future generations.

Enormous Potential: In its most recent inventory of offshore resources the Minerals Management Service highlighted how little oil and gas we have off our shores while simultaneously emphasizing the renewable energy potential of the Outer Continental Shelf, especially wind. Secretary of the Interior Salazar has stated that the wind potential alone off the lower 48 states exceeds our entire U.S. electricity demand.³³



Faster and Cheaper: Offshore oil and gas typically take 7-10 years to come online. Americans cannot wait that long. But what we can do is implement vigorous conservation measures and increase the efficiency of our cars, trucks, appliances, and buildings. We have seen an enormous reduction in oil and gasoline prices from only last summer not because of any new drilling

but because of a drop in demand. For example, the new fuel efficiency standards enacted by President Obama that will raise the average fuel economy standard to 35.5 by the year 2016, will save 1.8 billion barrels of oil over the lifetime of the vehicles sold in the next 5 years.³⁴ Additionally, adopting both energy efficiency and renewable energy programs would reduce demand for natural gas and lead to decreasing prices by \$2.05 per million cubic feet, or 37 percent, in the first year.³⁵ If we simultaneously invest in clean energy alternatives, we'll be well on our way to energy independence long before we'd ever see new oil or gas drilling actually make a difference.

³³ Department of the Interior. http://www.doi.gov/news/09_News_Releases/040209.html

³⁴ The White House. http://www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy/

³⁵ Impact of Energy Efficiency and Renewable Energy on Natural Gas Markets: Updated and Expanded

Analysis, American Council for Energy Efficient Economy, p. 9, April 2005.

Cleaner and Long Term: Offshore drilling means more than merely routine air and water pollution. It means regular and significant spills. We can move beyond our dependence on polluting oil and gas drilling by using clean, safe, and affordable renewable energy. For example, a single modern wind turbine can produce enough power to meet the annual electricity needs of 500 average homes.³⁶

³⁶ American Wind Energy Association—<http://www.awea.org/pubs/documents/FAQ2002%20-%20web.PDF>

Bibliography

- American Wind Energy Association –
<http://www.awea.org/pubs/documents/FAQ2002%20-%20web.PDF>
- Anthony James Cantanese Center for Urban and Environmental Solutions. (2003). The Economics and Fiscal Benefits from Florida's Beaches. The Bureau of Beaches and Wetland Resources of the Florida Department of Environmental Protection.
- Hauserman, Julie. (2006). Florida's Coastal and Ocean Future: a Blue Print for Economic and Environmental Leadership.
- Hilger, James and Michael Hanneman. (2003). The Economic Value of Beach Based Recreation at Southern California Beaches: A Latent Segmentation Approach.
- Houston, James R. (2002). The Economics Value of Beaches. U.S. Army Engineer Research and Development Center.
- Marlowe, Howard. Assessing the Economic Benefits of America's Coastal Regions. Trends and Future Challenges for U.S. National Ocean and Coastal Policy.
- Murley, James, Lenore Alpert, William Stronge. (2005). Tourism in Paradise: The Economic Impact of Florida Beaches. 14th annual Biennial Coastal Zone Conference.
- National Park Service, (2001). Visitation Statistics; 2000 Visitation.
www2.nature.nps.gov/stats
- New Jersey Tourism Economic Impact Study. (2005).
<http://www.state.nj.us/travel/pdf/2006-07-tourism-ecom-impact.pdf>
- Pendleton, Linwood and Judith Kildow. (2006). The Non-market Value of Beach Recreation in California.
- King, Philip G. Economic Analysis of Beach Spending and the Recreational Benefits of Beaches in the City of Carpinteria.
- King, Philip G. Economic Analysis of Beach Spending and the Recreational Benefits of Beaches in the City San Clemente. San Francisco State University.

King, Philip G. (1999). The Fiscal Impact of Beaches in California. Public Research Institute, San Francisco State.

Kirkley, James and David Kerstetter. (1997). Saltwater Angling and its Economic Importance to Virginia. Virginia Marine Resources Commission.

Strong, W.B. (1994) Beaches, tourism and economic development. Journal of the American Shore and Beach Preservation Association. 62(2).

U.S. House of Representatives Roll Call Votes
109th Congress - 2nd Session (2006). <http://clerk.house.gov/evs/2006/roll356.xml>

U.S. Senate Roll Call Votes 109th Congress - 2nd Session (2006).
http://www.senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_cfm?congress=109&session=2&vote=00219

U.S. Travel and Tourism (1993). World Tourism at the Millennium. U.S. Department of Commerce.

U.S. Travel and Tourism (1995). Travel Outlook Forum, Forging New Strategies in Tourism Research. U.S. Department of Commerce.

Wiegel, R.L. (1992). Dade County, Florida, Beach Nourishment and Hurricane Surge Study. Shore and Beach, vol 60, No. 4, 2-26.

World Travel and Tourism Council. (2001). Year 2001, World, United States, TSA Research Summary and Highlights. www.wttc.org/ecres/pdfs/a111/pdf

