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Global Economic Impacts of Shoreline Degradation: A Socioeconomic Analysis

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Abstract

Shoreline Degradation is an economically important issue, which damages coastal tourism economies, and causes shifts in flows of tourist capital. Shifts in flows of tourist capital have the potential to cause shifts in economic power relationships between nations. Governments and planning agencies should acknowledge the inherent dependence of coastal tourism economies on shoreline health and water quality, and conceptions framing the two issues as dichotomous are destructive – causing urban decisions to be made as if environmental and economic interests are mutually exclusive. It is important that such perceptions shift in order to maintain healthy coastal economies. Additionally, the socio-economic impacts of poorly planned and managed tourism industries need to be recognized, in the knowledge that broader economic health of a state or nation is not a definitive indicator of quality of life of residents of the immediate host population in the tourism community.

Introduction

Tourism as an economic sector is increasingly wielded as a method of boosting economies, gaining foreign exchange, reducing unemployment, and providing funds for investment in other sectors (Coffey, 1993). The sector is often invested in at the cost of the natural environment on which it depends, despite the inherent dependence of coastal tourism on healthy water, and a clean, safe natural environment (Hall, 2001). Failure on the part of local and national governments to prevent and mitigate shoreline degradation – in the form of chemical and fecal pollution, erosion, and litter – will have direct impact on

local tourist economies and global tourism flows, causing a shift in popular destinations globally. As a result of shifting tourism flows, tourist expenditures shift as well, shifting economic power between states and nations.

Localities that rely on tourism as a large part of their GDP, and as a means of generating employment and foreign exchange, stand to face a devastating economic loss due to degradation of shoreline quality. Recognition of the dependency of economic interests on shoreline conditions calls for a shift to recognition that investments in shoreline quality and water quality are vital to the building and maintenance of a healthy coastal economy. Further, considerations of shoreline health should be built into urban planning processes and policies, and expenditures stemming from such considerations should be considered not as a loss, but as a necessary means to drive coastal economies.

Coastal tourism is a classic sustainability dilemma, where the economic, social, and environmental interests of the region are brought into tension with one another. Tourism brings an influx of capital expenditure to coastal regions, with the effect of raising overall economic income and consumer spending, and making it a desirable option for economic interests, and job creation. However, the broader economic health of a community, state or nation should not be assumed as indicative of economic health, mobility and opportunity of the host population. Creation of bottom rung service jobs without opportunity for upward mobility creates tension between economic and equity interests. On the third side of the issue, environmental degradation due to the growth of industry is a double-edged sword – poorly planned growth negatively affects the environment, and a degraded environment in turn negatively impacts the economy. As Scott Campbell characterizes the inherent trade-offs in planning for sustainable development (1996):

> "In short, the planner must…'grow' the economy, distribute this growth fairly, and in the process not degrade the ecosystem. To classify contemporary battles over environmental racism, pollution-producing jobs, growth control, etc., as simply clashes between economic growth and environmental protection misses the third issue, of social justice. The "jobs versus environment" dichotomy…crudely collapses under the 'economy' banner the often differing interests of workers, corporations, community members, and the national public" (Campbell, 1996, p. 2).

That is, broader economic success of a region, state or nation, should not be mistaken as delineating economic opportunity, mobility, or quality of life for residents of a host population. Impact on a host population prosperity is far more nuanced than the broad header of the economic success of a region, state, or nation, and includes the health of the ecosystems on which local populations, and their economies, rely.

Despite equity issues, tourism is an industry on which many coastal regions rely, and its presence is deeply embedded in these areas. Rather than seeking eradication of the industry in the name of social justice, it is important to seek change within the industry, in recognition of its socioeconomic impact, and its reliance on healthy shorelines. It is imperative that state actors understand the economic vulnerability a lack of environmental investments and regulatory protections imposes on coastal communities dependent on tourist-based revenues, while simultaneously addressing the socioeconomic stress that a poorly planned tourism economy can impose on host populations.

Tourism as an Industry and Human Activity

In order to understand the impact of shoreline degradation on local tourism economies and global tourism flows, it is important to understand the theory of tourism as an economic industry. In the last three decades, an economic shift has taken place in coastal regions globally. Tourism has become the basis of economic activity, and traditional maritime activities such as fishing and boating have given way to a service-based tourist economy (Klein, Osleeb & Viola, 2004). Tourism is embraced by many nations and states as a means to boost economies, gain foreign exchange, reduce unemployment, and provide funds for investment in other sectors (Coffey, 1993). "A tourist generally brings money earned at home to spend at the destination – which is an important point in analyzing tourism's contribution to an economy" (Bull, 1991, p. 2).

The relationship between the size of the tourism sector in counties in the United States can be correlated with the proximity of the county to the coast. Counties with the highest percentage of tourism earnings relative to total earnings lie within 25 miles of the coast (Klein et al, 2004). The spatial correlation between coastlines and prominence of the tourism industry is exemplary of the direct economic impact beach spaces have on surrounding communities and populations, with special impact on tourism economies.

Further, it is the quality of these beach spaces that has impact on the economic contributions shorelines offer. Negative perceptions of a location often outweigh positive aspects, meaning that negative perceptions of beach quality are unlikely to be overshadowed by the existence of distinguished resorts and dining options (Bull, 1991). Klein et al (2004) suggest that coastal tourism is dependent on broad, clean, and sandy beaches. However, they highlight two important and unanswered questions. The first

questions the importance of beach quality to the tourism industry as it relates to other factors, such as the presence of cultural attractions and pleasant weather. The second questions the effect of such factors on migratory patterns, tourism flows, and coastal economic development (Klein et al, 2004). This paper examines these questions, and extrapolates the global economic impact of such factors. Further, it attempts to evaluate the socioeconomic impact of tourism-dominated economies.

Whereas tourism is an economic industry, it should also be understood as a human activity, in which human behavior interacts with resources, economies, and environments (Bull, 1991). It is important to note that tourism is not simply a phenomenon or a set of industries. Rather, tourism is a complex web of tourist needs and motivations, behaviors and constraints, as they affect market interactions between tourists and those supplying products, and generate impacts on both tourists, and their hosts (Bull, 1991).

As a human phenomenon, tourism is driven by and subject to the needs and motivations of tourists. As such, it is important to continually explore and understand those needs and desires, especially in the abstract, where the benefit sought by tourists is not a product, but rather an ideal or dream for which they are willing to travel, and expend capital.

> "The end benefits which many tourists seek may not be tradable products at all. For example, one tourist may really wish to purchase the chance to sit on a sunny beach for a week, to obtain the benefits of total relaxation, restored well-being, and a good sun tan… in neither case are these tourists really seeking to buy tradable products, but rather a dream, total experience" (Bull, 1991 p. 3).

Tourism as an economic industry is made up of sets of abstract factors that contribute to the vitality of the industry. “Abstract economic value” refers to the economic contribution of non-physical and qualitative factors, such as perceptions and brand images of a destination. The coastal tourism industry is built on a basis of abstract economic factors such as the “dream” of an idyllic vacation. Further unpacking the dream as an economic product, it is apparent that multiple factors play into the simple dream of sitting on a sunny beach. While the ideal itself is not a tangible item, the factors that contribute to the realization of this dream are far more tangible. When a tourist travels to, and expends capital at a coastal destination, they are paying for the opportunity to enjoy the pleasant morphological aspects of the region’s beach spaces. Therefore, while beach-goers do not pay directly for entrance to the beaches of a locality, those beaches have a market value that directly impacts the ability of other businesses and industries to function.

A 2008 study concluded that it is not strictly per capita beach space that dictates enjoyment of beaches, but also a mixture of characteristics relating to beach morphology and environmental quality (Cervantes & Espejel, 2008). Cervantes and Espejel specifically noted 36 ecological indicators that delineate the suitability of a beach for tourism and recreation. These indicators were chosen on the basis of a survey of beach-goers in Mexico, Brazil, and the United States, therefore providing a useful snapshot of tourist desires for a location (Cervantes & Espejel, 2008). Surveys and chosen indicators show the importance of a lack of environmental issues, such as dirty sand and water, bad smells, and presence of trash on the beach, in conjunction with socioeconomic indicators just as the provision of parking lots and restaurants near beaches (Cervantes & Espejel, 2008). Martin and Uysal (1990) acknowledge that beach quality is important to the experience of the traveler when

they say, "If a resource-in this case, the beach, suffers degradation, the quality of the visitor's experience is consequently diminished" (Roca, Riera, Villares, Fragell, Junyent, 2008, p. 839).

The "Sun, Sand, and Sea" model of tourism holds that the success of a location as a tourist destination is built on the foundation of a combination of the presence of sun, sand, and sea. The combination of the three traits is not only a foundation, but the primary magnetic factor in drawing in and retaining tourists. The model, though aging, is still valid, with caveats. It should now be recognized that the sand and sea provided by destinations diminishes in value significantly if the quality of the features themselves has been compromised. Tourism economies based in the presence of desirable natural features and cultural experiences are at risk of devaluing themselves through the diminishing value of their shoreline recreation spaces and diminishing authentic cultural presence. Investments in beach and water quality are multi-faceted investments in the growth of the economy rather than a single use investment in environmental quality. Sociocultural attention should be regarded in the same manner. Rather than an issue of charity, cultural preservation is also an issue of preserving the integrity, authenticity, and uniqueness of a destination, which sets it apart from others.

> "No business sector has greater reason to promote ecologically and culturally sustainable development than tourism. The tourism industry is fundamentally dependent on the diversity and quality of the world's natural and cultural resources. Nonetheless, the tourism industry has not focused on addressing issues of environmental conduct in a proactive fashion" (Hawkes & Williams, 1993, p. 87).

In preserving beach quality, coastal areas undertake the mitigation and prevention of beach erosion, sand and water quality reduction due to pollution, and litter, and the combination of point source, and non-point source pollution that contribute to the pollution of sand and water. “Beach nourishment” projects projects – which mitigate shoreline erosion through the carting in of sand to replenish eroded portions of beach – have sprung out of the need to mitigate erosion (Klein et al, 2004). Studies show that areas that actively invest in beach nourishment programs (and other forms of degradation mitigation) not only earn back the investment in tourist income, but also exceed it, showing the investment to be wise (Klein et al, 2004). For example, each dollar invested in beach maintenance in the USA returns $600 in taxes paid by national tourism, and $20 by foreign tourists (Cervantes & Espejel, 2008). Coastal economies are herein shown to benefit from shoreline quality – reinforcing the assertion that coastal tourism economies are dependent on the health of the shoreline environment.

Tourism’s impact also stretches across multiple economic sectors including activities like recreational fishing, swimming, diving, snorkeling, and boating, as well as the hotel and resort industry, restaurants, retail establishments, marinas, tackle shops, and dive shops, making it a central motor for a ripple effect on many economic sectors. If the tourism industry is reliant on healthy shorelines, then all of these sub-industries are then somewhat reliant on healthy shorelines. “Estimates based on data on foreign tourism for such states as Florida and California suggest that as many as one-half of all foreign tourists are drawn to the U.S. because of its attractive coastal shorelines. The travel and tourism industry is the nation’s largest employer and second-largest contributor to the U.S. gross domestic product, generating over $700 billion annually” (Klein et al, 2004, 1080-1081).

Coastal states are the largest generator of tourist revenues, with an impressive 90 percent of all tourist spending occurring in coastal states (Houston, 1996; U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1998) (Klein et al, 2004). These states generate more tourist capital than those which house impressive national parks such as Yellowstone and the Grand Canyon, showcasing the true value of shoreline spaces to a state and national economy, and the necessity of shoreline quality in order to preserve that value.

In general, tourists can be sorted into two segments: Those traveling for business, and those traveling for recreation. It is the segment of people traveling for recreation that we concentrate on in this study. In studying shoreline spaces, we look at a sub-category of tourists sometimes known as "sun-lust vacation consumers" (Bull, 1991). These tourists travel for the express purpose of warm weather and beach recreation. Beaches are a defining factor in attracting such tourists. In a 1993 study, Coffey found that roughly 64 percent of American tourists chose Costa-Rica as a destination specifically for the beaches. Seventy-two percent of Canadians and 76 percent of Europeans came for the same reason. For this reason, investment in shoreline spaces returns more money than was initially invested (Coffey, 1993). In Western-Mediterranean countries, such as Spain, approximately 175 million visitors per year come as tourists, and cite the beaches as their main attraction (Roca and Villares, 2008).

Locations need a certain amount of magnetism in order to initially draw tourists in, and to continue to attract return visitors with the fulfillment of their expectations (Beerli & Martin, 2004). In the initial attraction, the branding of the location is important, and attempts at destination branding can be seen in advertisements, and tourism websites. As

will be delineated in the following discussion of the case studies, destination branding is done through the usage of pristine images and enticing descriptions of the characteristics of the destination on tourism websites, but it is also done through word-of-mouth of past visitors, and through firsthand experience. An uncompromised natural environment is central to the commonly advertised brand-image of paradise. Investment in coastal quality then takes on the important role as a facet of the branding of a tourist destination.

In studying the impacts of shoreline degradation on local tourism economies, global tourism flows, and socioeconomic conditions, four specific case studies were investigated. The case studies of Hawaii, California, Mexico and Spain were chosen for their reputations as coastal tourism hubs. Within each area, economic contributions of coastal tourism are analyzed.

Characterization of Hawaii

Since its admittance as the 50th state of the union in 1959, Hawaii has become a popular tourist destination, and has built an economy largely centered on the tourism industry. Many nations and localities have embraced tourism as an economic strategy (Coffey, 1993), and Hawaii's acceptance of the strategy can be seen in the fact that in 2007 more than 60 percent of all jobs in Hawaii were tourism-related (Genz, Fletcher, Dunn, Frazer & Rooney, 2007).

Hawaii's sandy beaches are the lifeblood of its thriving tourist economy. With 1,052 miles of shoreline, the state's tourism website boasts of its "natural beauty," "tranquil waters," and "idyllic beaches" as offerings to lure potential tourists (gohawaii.com). Under a section titled "Essential Hawaii" the Hawaii Tourism Authority lists the natural

attractions of the islands, including volcanoes for hiking and scenic viewing, ocean activities, and whale viewing. These offerings are indicative of Hawaii's tourist economy as being largely dependent on the condition of its natural environment. Offering the lure of "idyllic" nature, the strength of Hawaii's tourism draw has its roots buried deep in the quality of the environment it advertises to the public. Specifically, quality of beach spaces and marine environments have direct impact on the vitality of Hawaii's tourist economy. Among the largest issues facing Hawaii's beach spaces is shoreline erosion. "Beach erosion has direct consequences for Hawaii's tourist-based economy, which depends on the attraction of beautiful sandy beaches" (Genz, Fletcher, Dunn, Frazer & Rooney, 2007, p. 87).

In order to combat the threat of degraded beaches, Maui County has approved and adopted science-based setback rules. "One of the most important natural resources of the…county of Maui is its shoreline area," the Department of Planning's summary of Chapter 403 Shoreline Planning Setback Rules and Regulations summary states, "Due to increasing demands for utilization of the beach and ocean resources, it is imperative that use and enjoyment of the shoreline area be insured for the public to the fullest extent possible; that the natural shoreline environment be preserved; and that the natural shoreline processes be protected from development" (County of Maui Department of Planning, 1996, p. 403-2). The laws prohibit the "mining" of sand, rocks, coral rubble, and other marine shoreline deposits, and the installation of sand, soil, rocks, plants, or similar landscapes(County of Maui Department of Planning, 1996).

Maui's shoreline setback lines are dictated as being forty feet from the shoreline on all lots (with exceptions for lots of specified size and age), where "lot" is defined as any "designated parcel, tract, or area of land established by subdivision or as otherwise

established prior to adoption of subdivision laws, to be used, developed, or built upon as a unit" (County of Maui Department of Planning, 1996 p. 403-2). The setbacks also serve to prohibit minor structures and activities except public access walkways, landscape planting and irrigation, and non-commercial ocean recreation activities within a twenty-five foot setback from the shoreline. However, requests can be submitted, and exceptions made for both activities and structures, and exceptions are made for lots with certain qualifications.

Maui's regulations serve as an indication and an example. They first indicate that major tourism hubs are acknowledging the importance of shoreline health, and then follow through with an example of coastal management that attempts to address the imbalance in the relationship between urban development and shoreline spaces.

In characterizing tourists who travel to the Hawaiian Islands, it is important to note that visitors are pulled from a diverse pool of localities. In 2012, total visitor expenditures hit a record 14.4 billion, from a total of 8,028,744 visitors, exceeding the previous high of 7,628,118 visitors in 2006, equaling out to a 74.5 million total tourist days. Visitors spent an average of $191 per person daily, and spending over the course of a whole trip averaged $1,651. Looking closer, arrivals from the U.S. west make up Hawaii's largest market, with 3,178,824 visitors in 2012, with visitor expenditures totaling $4.6 billion. 1,699,625 visitors came from the U.S. East, spending $3.4 billion. Japanese visitors make up the next group of tourists, spending $310 per person daily, with 1,465,654 visitors in 2012. Canadian visitors to the island spent $1 billion, with 499,144 total visitors. Chinese visitors spent $396 per person per day. Hawaii Tourism Authority groups the rest of the Asian nations of origin into a category titled "Other Asia". Visitors from Other Asia spent $307 per

person daily in 2012, adding up to a total of $598.9 million from 289,977 visitors (Lui, Chun, Shiowaki & Miyasato, 2013).

Daily spending by Korean visitors was $262, while Australian visitors spent $248 per person per day, on average. Visitors from New Zealand averaged in at $192 per person per day. Europe (United Kingdom, Germany, France, Italy and Switzerland) brought 129,252 visitors while total visitor expenditures came in at $292.1 million. Latin American tourists brought in a total of $61.9 million.

Characterization of California

California is known for its warm weather, and sandy beaches, boasting 3,427 miles of coastline ("Statistical abstract of the united states," 2012). In 2012, beaches in California generated $106.4 billion, and supported 917,000 jobs. California boasts of its beaches and surfing opportunities on its tourism website, saying “The Golden State boasts more than 1,100 miles of breathtaking coastline, ranging from Hollywood-perfect expanses of smooth sand to dramatically windswept oceanside cliffs. If your idea of a perfect day involves beach volleyball, building sandcastles, hiking along picturesque seaside trails or catching a wave, you can find it all at California’s many beaches” (visitcalifornia.org). The image that California puts forth in order to draw in tourists is dependent on clean, safe beaches.

In 2013, California’s Venice Beach was the most-visited beach in the United States, with 16 million total beach visits (Travel & Tourism Market Research Handbook). Newport and Huntington beaches followed closely, at third and fifth most-visited. California is also home to Coronado Beach, San-Diego; a location that was named the number-one rated beach in the United States in 2012 by Professor Stephen P. Leatherman, of Florida

International University and dr.beach.org (Travel & Tourism Market Research Handbook). He claims that designation as the top beach comes with an average increase in tourism of 20 percent, indicating that a perception of beach quality is of importance to tourists in making decisions on where to travel.

California is also home to two of the lowest scoring beaches in the NRDC's "Testing the Waters" yearly report: Avalon Beach on Catalina Island, and Surfrider Beach in Malibu (NRDC). California as a whole rated 20th out of 30 coastal states in beach water quality. The NRDC's report measures the frequency that water quality samples exceed national bacterial standards. Avalon Beach has five water quality testing locations, with varying degrees of success in passing tests. The location with the highest rate of success is the testing location 100 feet East of Green Pleasure Pier, with a 19 percent failure rate out of 32 tests, and the area with the lowest success rate in water quality testing is the testing site 50 feet west of the pier, which failed 83 percent of 32 water quality tests in 2013. Water quality at Avalon beach necessitated a total of 294 beach closure days across all five testing locations. Surfrider Beach failed 35 percent of 248 tests, necessitating 112 beach closure days over the year. The 83 percent failure rate of one subsection of Avalon Beach necessitated 128 beach closure days over the course of the year (NRDC).

The largest issue facing California's sand beaches is poor quality of the water used by swimmers. California's efforts to stem water quality problems manifest themselves in the AB411 program, which requires sampling and reporting of beach water quality to be submitted to local beach water quality county agencies (Water Boards). California counties spend more than $10 million per year on the running of beach programs in addition to US EPA beach grant money, which currently totals at around $500,000 a year. The funding is a

supplement to AB411 money, and also serves to develop the statewide California Beachwatch database which serves to collect beach quality information (Water Board). Between 1995 and 2001, California invested approximately $31 million in beach nourishment programs. By contrast, the state generated $38 billion in coastal tourism revenues, meaning their investment was earned back at a 1,226 percent return. (Klein et al, 2004). California's economy is heavily based on coastal tourism revenues. A 2002 case study of San Diego County, Philip King of San Francisco State University found that "the loss of tax revenue from diminished tourism substantially exceeds the cost of maintaining these beaches" (King, 2002, 3-1).

Characterization of Mexico

Mexico's positioning along both the Atlantic and Pacific oceans positions it as a coastal tourism destination with roughly 450 beaches and marine areas, which it boasts as the perfect locations for leisure activities such as surfing, sailing, and lounging (visitmexico.com/en). With 5,797 miles of shoreline ("CIA world factbook", CIA), the tourism website for Mexico boasts "There's a paradise for everyone along Mexico's sublime coastline"(visitmexico.com/en/sun-and-beach). Mexico is the second fastest growing tourist destination in the world (WTTC Trends 2004-2013). Currently receiving 22.8 million tourists per year, in 2013 travel and tourism contributed 13.3 percent of Mexico's total GDP (WTTC, 2014). Tourists spent an average of $31 per day (Wilson, 2008), and tourism contributed 7,023,500 jobs, making up 14.2% of total employment (WTTC, 2014).

Characterization of Spain

Spain is rich in coastal regions, with 3,085 miles of coastline, making it a popular tourist destination. The Spanish economy, as well as its society has been transformed by tourism development. Sinclair describes Spain as a ‘‘country whose transition to the ranks of the newly industrializing nations followed the path of a decline in agriculture and rise in tourism and construction activities, which financed the expansion of manufacturing’’ (Sinclair, 1998,p. 22).

Beaches on the Mediterranean basin are the main form of economic income in most areas on the region, through their role as major tourist resources and attractions (Roca & Villares, 2008). In fact, Roca and Villares assert that the growth of tourism in the coastal towns of Malgrat, Blanes, Lloret de Mar and Rossa de Mar ushered in a period of almost exclusive dependence on tourism as an economic industry (Roca & Villares, 2008).

The areas of Spain that hold the highest agglomeration of tourism are Las Palmas and Santa Cruz de Tenerife in the Canary Islands, and Alicante, all of which are coastal zones that attract tourists from within the nation, and internationally. Tellingly, the portions of Spain with the lowest tourism agglomeration were the inland provinces of Alava and Zaragoza (Urtasun & Gutierrez, 2006). Branding work done by communities in Spain presents destinations as desirable based on the natural beauty of the regions. “The marketing strategy pursued by the local community is mainly based on the beautiful landscapes, clean waters, gastronomy and cultural events” (Roca & Villares, 2008, p. 320). In 2012, 57.7 million international tourists traveled to Spain, expending approximately $77 million. The majority of visitors came from France, followed by Germany and Russia ("Informe anual 2012," 2012).On average, tourists spent approximately $149, daily.

Visitors spent the majority of their money on lodging, at 25.2 percent, followed closely by money spent on excursions, at 19.2 percent ("Informe anual 2012," 2012).

The Economic Case for Shoreline Health

Hawaii, California, Mexico and Spain demonstrate that healthy coastal environments are an important economic asset. Abstract ideas of the economy and the environment create an image of a false dichotomy, and contrary to perception, are not mutually exclusive. Rather, the two interests are tied to each other. Whereas the environment does not depend on the economy in order to thrive, economic interests need to protect the resources that enable their existence, so that economic health is recognized as being tied to environmental health. Environmental aims do not harm economic aims, but rather promote them, through maintaining the foundation of the tourism industry. In noting the number of tourists that travel to each destination in order to enjoy beach spaces, it is clear that environmental protection policy and economic development policy are intrinsically linked through the magnetic effect of a healthy and aesthetic shoreline space in attracting capital flows from outside the host community.

Shoreline degradation affects local economies in a myriad of ways. It is increasingly apparent that environmental quality, particularly beach and shoreline quality have a direct impact on the vibrancy of local economies. Given that tourism is a human activity driven by human needs and desires, and acknowledging that travelers choose destinations based on a "brand image" derived from a combination of personal experience, and branding work on the part of the destination, it is clear that flows of tourists, and tourist capital are driven by

the perceptions of beach spaces in the minds of potential tourists. Perceptions and brand image then should both be understood to have abstract economic value.

Water quality dangers create health risks for beach goers, and as a preventative measure, result in beach closures in many states and nations. For example, California's beach closure laws mandate that when water contact is unsafe due to bacterial contamination, advisory signs must be posted at affected beaches. In the state of California, "closures are water contact prohibitions due to sewage spills. Local health agencies are responsible for issuing advisories (postings) and closures. An advisory is issued when the results of testing indicate that one or more bacterial levels exceed the Ocean Water Contact Sport Standards issued by the California Department of Health Services" (*HS Code 115875-115915*) (waterboards.ca.gov). Signs are placed along the beach, and access points to the beach warning that swimming comes at the risk of potential illness. During a beach closure, water remains off limits to swimming, wading, and surfing, until bacterial standards are acceptable again (waterboards.ca.gov).

Shoreline spaces come along with the potential for an influx of capital, and therefore come with the potential for large capital loss. Huntington Beach, California serves as a jumping-off point for understanding the economic loss that shoreline degradation can impose. The degradation of water quality past statewide or nationwide bacterial standards necessitates beach closures. The intent behind such closures is to prevent illness in beach-goers, but the impact stretches beyond health ("A closed beach", NOAA).

The closure of beaches causes an economic ripple-effect, ultimately causing losses in visitors, capital expenditures of visitors, and jobs ("A closed beach"). NOAA estimates that a single day closure of Huntington State Beach would cause a loss of $28,000 in beach-

goer spending ("A closed beach", NOAA) over the course of that day. Beach closures totaling to one month would cause a loss of $864,000 in the area, with effects to surrounding counties totaling to $1.1 million ("A closed beach", NOAA). Economic loss stems from the loss of 38,000 beach visitors over the course of the month of closure. "Economists have estimated that a typical swimming day is worth approximately $35 for each beach visitor, so the economic loss for each day on which a beach is closed or under advisory for water quality problems can be quite significant" (NRDC, 2013).

If California lost $28,000 due to a loss of 1,200 beach visitors due to beach closures, we can extrapolate that if Spain lost the same 1,200 beach-going tourists due to shoreline degradation, and those tourists spend on average, $108 daily, Spain would lose approximately $129,600 daily, and $4.1 million over the course of one month. Tourists lost to the Spanish coastal regions would choose new travel destinations, effectively shifting capital flow to a new nation.

The economic loss described above is not a cue to abolish beach closure laws as a means to prevent further economic loss. Rather it is a call to end the conditions that necessitate them. Polluted beach-water is associated with illnesses including stomach flu, skin rashes, pinkeye, respiratory infections, meningitis, and hepatitis (Yoder, Hlavsa, Craun, Hill, Roberts, Yu, Hicks, Alexander, Calderon, Roy & Beach, 2006). Children submerge their heads more often than adults and swallow water more frequently when swimming, which makes them especially susceptible to waterborne illness. Over the last few decades, infection due to recreational contact with water has increased (Yoder et al, 2006). More specifically, fecal contamination in beach-goers at Los Angeles and Orange County beaches cause between roughly 1,479,200 gastrointestinal illnesses each year (Given et al, 2006).

Beach closure policies are necessary to stem such illnesses, but their economic consequences have been demonstrated as being vast and negative. It is therefore the water quality conditions that require regulation and rectification. For the aforementioned reasons, environmental regulation should be considered a part of economic regulation. Beach armoring, and beach nourishment are mitigation techniques, but need to be implemented in conjunction with preventative measures as well, in terms of urban planning techniques, and regulatory policies to ensure healthy shoreline spaces and economies.

Environmental protection policies serve to mitigate and prevent extreme capital losses from beach closure days, stemming environmental and economic damage. In the case of coastal tourism economies, the environment and economy are reconciled of their position as two opposing points; their success is mutual. Therefore, it is important that environmental interests are included in economic policy making, and into the urban framework. Urban planning and policy making should seek to form urban-economic structures which reduce the need for "environmental protection" through economic and social change that fit the urban area more comfortably into the larger ecosystem (Roseland, 1998).

The Social Equity of Tourism

However, it should not be assumed that an economy based heavily in tourism is resilient and equitable. Further analysis of tourism economies brings to light the social, economic, and environmental damage that a poorly managed tourism industry can yield. "If mismanaged or allowed to expand within short-term objectives, tourism can destroy the

integrity of the resources upon which it is built" (Mbaiwa, 2003, p. 14). The process of tourism agglomeration can be described as a desirable location attracting tourism and tourist firms which in turn attract further development of tourist firms. The continuing process changes the locality, with potential to over-occupy and damage the assets of the destination that originally attracted tourists and firms. In this way, as Gutierrez states, "tourism contains the seeds of its own destruction, that is, tourism can kill tourism" (Gutierrez, 2006, p. 2).

Looking to Hawaii's economy, it should be noted that 60 percent of employment is found in the tourism industry. This is both a cue to government agencies and planners to take action to preserve beach spaces in order to preserve that economy, and a call for economic diversification in order to maintain resilient, equitable economies.

Tourism generates large amounts of low-wage service jobs, in addition to smaller numbers of positions for business owners, and managers. Locations look to tourism to raise rates of employment, and to that end, tourism has been largely successful. However, in terms of quality of jobs, and livable wages, it is important to question the impact of tourism on overall quality of life. Employment rates are a necessarily flattened indicator that attempt to measure a facet of quality of life. However, employment rates are not indicative of the ability of a job to support a household, and are therefore inadequate on their own in indicating the economic equity of an area.

In a 1999 study, Perdue, Long and Kang found that members of a host community experience an improvement in quality of life during the early phases of tourism development until a carrying capacity is reached, beyond which additional development moves toward negative effects on the host population (Perdue, Long, & Kang, 1999).

Regions with low diversity of economic activities outside of tourism experience positive impacts from the growth of the tourism industry, while regions with high levels of economic diversity outside the tourism industry experience negative effects both economically, and in terms of social welfare (Gutierez, 2006).

Tourism economies promote inequality through creation of bottom-rung positions offering minimal compensation, with few opportunities for upward mobility (Wilson, 2008). The outcome is an economic sector with modern appearances, but which perpetuates class inequalities. Wilson's work asserts that this class difference is an economically and socially prominent problem in Mexico.

Conclusions

Environmental protection of coastal zones is required for the growth and preservation of a coastal tourism economy. Therefore, investment in policies, restoration projects, and sustainable infrastructure is necessary for a continually healthy economy. In noting that tourists in Spain expend the second largest percentage of their capital on "excursions," quality of the nature in the area is important to tourists, in terms of the capital they expend in the area. Conceptions framing environmental preservation and economic health as a false dichotomy are outdated and detrimental, and a shift must occur toward conceptions that acknowledge the inherent dependence of tourism economies on environmental health. Shoreline regions in particular are demonstrated as having the ability to draw in tourists, and their capital expenditures, showing the inherent value that beach and water quality have to economies.

In interest of economic security, pursuit of a tourism-based economy should also be

considered critically from a social-equity standpoint, in order to assess the value or detriment of the industry to the host population. Regions should make effort to foster diverse economies for the purposes of resiliency and economic mobility.In interest of economic security, and continued growth of vibrant coastal economies, shoreline health must be maintained and restored. Policies and development plans should center on mitigation of contaminated storm water and other forms of pollution entering waterways in recognition of the fact that environmental and economic health are deeply and essentially tied to one another's success.

Coastal policy, restoration, and planning should pursue a model of "sustainable tourism" which ensures that long-term goals are pursued in planning, in recognition of the fact that tourism agglomeration can lead to its own downfall if improperly planned (Hall, 2001). In pursuing sustainable tourism, local governments and planners should expand their focus to include broader environmental and socio-cultural concerns (Hall, 2001). It is precisely this diversity that makes planning for coastal tourism so wrought with tension. Concentration solely on the economic benefits of tourism industry expansion causes formulation of unrealistic expectations of the potential of tourism as an economic booster, which drives policy and action that fails to consider the adverse social, environmental and economic consequences tourism industries can impose on their host communities (Hall, 2001). Sustainable tourism seeks to reconcile these tensions through policies and planning styles that engage economic sectors in environmental preservation. Specifically, engagement through a strategic plan is essential, rather than tourism development on an ad-hoc basis (Hall, 2001). Strategic plans provide a basis for reconciling tensions that is lacking in ad-hoc decisions, which fail to give consideration to the nuances of the

interrelations between the three pillars of a region's sustainability: environment, economy and social equity.

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