Sandy Beaches as a Tourism Attraction: A Management Challenge for the 21st Century

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ABSTRACT


It is widely recognized that tourism is one of the world's largest and fastest growing industries. Historically sandy beaches have played an important role as locations for recreation and as attractions upon which tourism development has been based. This use of beaches for recreation and tourism has had significant impacts environmentally, socially and economically. As a consequence it is now understood that significant costs are often associated with tourism development. Irrespective of this, demand for high quality beach environs continues to grow while the corresponding availability of such environs is diminishing. Thus, significant conflicts are arising. Simplistic management approaches will not solve this dilemma, rather creative, dynamic and ongoing applications tailor-made to the needs of specific areas are needed to ensure the future of these most popular of tourism attractions. The use of sandy beaches for tourism will be one of the significant management challenges in the coastal zone in the 21st Century.

ADDITIONAL INDEX WORDS: Coasts, management, recreation, marine.

INTRODUCTION

The growth of tourism has been so dramatic over the past 50 years that many claim it now constitutes the single largest industry in the world (MILLER, 1990; JENNER AND SMITH, 1992). Whether this is true or not, there is no doubt that tourism has become a significant contributing sector of the global economy. The World Tourism Organization (2000) estimated that, during 1999, there were a total of 592 million international tourism arrivals, an increase of 4.5% from 1995. Expenditure from these tourists amounted to around SUS423 billion dollars, a 7.6% increase on the previous year. Predictions for the future of global tourism are for a continuation of this rapid growth at an average rate of 4.3% per year to a total of 1.6 billion international travelers in the year 2020 spending more than US$5 billion every day! These predictions estimate that in 2020 there will be three times the number of international tourists there were in 1995 and they will spend nearly five times more (WORLD TOURISM ORGANIZATION, 1998).

In addition, it must be remembered that many, many more millions of people travel domestically. Tourism is, therefore, a large and rapidly growing global industry. An important component of this tourism industry is those activities and facilities that are focussed on the coastal and marine environment including beaches.

There is no estimate of the value of the coastal and marine tourism industry, however, there is no doubt that the annual turnover is substantial and that it forms a significant business sector with widespread economic influence. This is particularly so for island and coastal communities because tourism can form the single most important economic activity (MILLER and AUYONG, 1991).

Travelling to coastal areas for recreation has existed for probably as long as humans have (FABBRI, 1990). The sea has a strong attraction for people, this is not surprising given its importance as a source of food and transport. This importance is reflected in the fact that the great majority of the world's population resides along the coast (MILLER, 1990). Coastal and marine tourism is, quite simply, huge business. The increasing demand for marine activities (ORAMS, 1999) has added to a tradition of sea, sand and sun holidays and consequently millions of people now visit marine environs for recreational pursuits. There is no doubt that coastal and marine tourism is a significant issue with widespread
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The causes of this increased amount and diversity of coastal and marine tourism are threefold. First, the world's population is growing at an increasingly rapid rate. There are now twice as many people on the planet as there were 20 years ago, totaling around six billion. Human population will continue to increase and will likely exceed eight billion by the year 2118 (WIGHT, 1993). The majority of this population will reside close to the coast and, as a result, use of the coast for recreation and other purposes will also increase (GRIFFIN, 1992). Second, the rapid rise in mass tourism has resulted in more people travelling away from their places of residence for recreational purposes. A significant (but as yet not quantified) proportion of this travel is to coastal areas. Of particular interest is the exposure to areas of the world that were previously undeveloped and unexposed to high levels of human use. The rise of tourism has contributed significantly to the geographical spread of human recreational activities. The third factor that has been of enormous influence with regard to the marine environment has been the invention and mass production of materials and vehicles that have improved access to and safety in marine settings. Many hundreds of machines and equipment now permit safe and relatively easy access to the sea, the result is an increasingly diverse range of activities in an increasing number of coastal settings that were previously inaccessible (Figure 1).

The increasing diversity and popularity of coastal and marine tourism has resulted in several important patterns. First, as one would expect, greater use tends to occur close to areas of human concentration, namely cities. Despite the heavy emphasis on research on international travel in the tourism literature, the majority of recreation occurs close to people's homes, this is also true with regard to coastal recreation. MILLER (1990: 6) emphasizes this point when he argues:

It should be kept in mind that six out of ten people around the world reside within 60 kilometres of the coastline and two-thirds of the world's cities with populations greater than 2.5 million are located by tidal estuaries. The population of the coastal zone is projected to double within the next 20-30 years.

Because the great majority of coastal recreation occurs in close proximity to urban areas, the environments upon which the recreation is based are subject to increased pressure. Marine environments closer to cities receive large amounts of urban "runoff" and other discharges resulting from human activity (examples include sewage and storm-water). In addition, they are often subject to dredging, foreshore alteration and reclamation, commercial development and the dumping of waste products. The effect of this is that these coastal ecosystems are subject to great pressure from human activities and, as a result, are more vulnerable to additional pressure such as that produced by recreational activities.

The widespread and rapid growth of tourism generally is well documented (see above). It is, however, difficult to separate coastal and marine tourism from general tourism data, for as MILLER (1990: 1) notes: "Unfortunately, government and industry travel statistics are generally not compiled in a manner, which clearly documents the nature of coastal zone tourism". Nevertheless, there appears to be a consensus in the literature that coastal and marine

Figure 1. Sand-boarding at Joaquina Beach, Ilha de Santa Catarina, Brazil.
tourism is growing at an even faster rate than the general tourism sector (MILLER, 1990). This growth reflects not only increasing opportunities for marine recreation but also an increased level of interest in anything to do with marine environments (SHACKLEY, 1996). A limited number of studies suggest that the growth of marine tourism has been relatively recent. For example, research on marine tourism businesses in New Zealand revealed that over 60 per cent of operators (400) had been in business less than five years (McKEGG et al, 1998). Certainly for many island nations coastal and marine tourism is the mainstay of the local economies. For example, the Seychelles, a small island nation in the northern Indian Ocean, derives approximately 70 per cent of its foreign exchange earnings from tourism (GABBAY, 1986), and this tourism is "entirely ocean based" (SATHIENDRAKUMAR and TISDELL, 1990: 79). In Bermuda, where beach based and marine tourism dominate, approximately 40 per cent of public revenue is derived from tourism and tourism businesses generate over US$1,225 million (ARCHER, 1989).

THE IMPORTANCE OF BEACHES AS A TOURISM ATTRACTION

Many types of marine settings are popular for tourists. However, throughout history, beaches have been by far the most popular (WALTON and SMITH, 1995; LENCEK and BOSKER, 1998). In particular, beaches in close proximity to urban areas are extremely important locations for recreation (Figure 2).

The demand for beach and bathing facilities has largely paralleled the demographic developments. Urban beaches are increasingly seen as the single most important recreational outlet for a large segment of the urban population (WEST, 1990: 263).

This demand is reflected in the massive number who visit beaches, for example, HOUSTON (1998: 24) found that:

Beaches are key to U.S. tourism, since they are the leading tourist destination, with historical sites and parks being second most popular, and other destination choices minor by comparison. Coastal states receive about 85 per cent of U.S. tourist-related revenues, largely because of the tremendous popularity of beaches. For example, a single beach, Miami Beach, has more annual visits than Yellowstone, the Grand Canyon, and Yosemite National Parks combined.

This finding is even more significant when one considers that the United States is the world's most important tourist destination (WEST, 1990). The popularity of beaches (or regions of beaches) as settings for tourism is also reflected in popular culture, as represented in music, art, movies, television and writing (ROWE and PATON, 1995). Examples include Surfer's Paradise (Queensland, Australia), Copacabana (Brazil), Waikiki (Hawaii), The Riviera (France), San Sebastian (Spain), Venice (California), Acapulco (Mexico), The Golden Mile (Durban, South Africa) and Uluwatu (Bali, Indonesia). Each of these areas hosts well in excess of a million visitors each year. This pattern of intensive use is repeated around the world at virtually every beach located close to an urban area.

While beaches are without doubt the most popular marine tourist attractions a second important location is islands (LOCKHART and DRAKAKIS-SMITH, 1997). Of course these islands also include beaches and they have proved to be immensely popular settings for tourism and associated development including resorts, hotels, restaurants and activity providers (ARCHER, 1989). Once again, many of these islands (or groups of islands) have become famous locations for beach based tourism. These islands include Hawaii, Tahiti, Fiji, Bali, Catalina, San Juan's, Key West, Martinique, Aruba, Jamaica, Bermuda, Majorca, Mikinos, Cyprus, Seychelles, Palma, Maldives, Canary, and the Galapagos. A number of smaller islands have become famous as a result of the development of a single tourist resort, examples include Heron and Green on the Great Barrier Reef and Phuket in Thailand.

![Figure 2: Crowds at Balneario Camboriu, Santa Catarina, Brazil (photo courtesy M. Pulette).](Journal of Coastal Research SI (35) Brazilian Sandy Beaches)
One of the reasons for this popularity is the strong positive image that small islands, beaches, coasts and the sea have. For many people, the term "relaxation" evokes images of waters gently lapping against sandy beaches (LENCEK and BOSKER, 1998). These images have tremendous power and have been used successfully to influence people's decision making regarding their use of spare-time. The mental image of the "3-S's", sun, sand and sea is automatic for many when they think of holidays. The fact that there are now more locations, more activities and more opportunities to experience the "3-S's" contribute to the demand for beach-based settings for marine recreation.

THE IMPACTS OF TOURISM

In the early stages of mass tourism development, the impacts of tourism were largely viewed as positive, particularly with regard to their influence on the economic development of a region or country. The influx of "foreign" cash into an economy as a consequence of tourism was viewed as an "export" industry from an economic perspective. Consequently, tourism was seen as a desirable sector to target for development. However, more recently it has been recognized that there are costs associated with tourism development.

Countries are encouraged to invest in tourism because of its evident economic benefits - particularly foreign exchange earnings, employment and infrastructural development such as transport networks. Cost - benefit analysis of tourism development has tended to concentrate on these positive outcomes, while scant attention has been given to the social, environmental and other costs associated with development (WARREN and TAYLOR, 1994: 1).

Other analysts are far more dramatic in their assessment of the impacts of tourism. For example, CROALL (1995: 1) states:

A spectre is haunting our planet: the spectre of tourism. It's said that travel broadens the mind. Today, in the modern guise of tourism, it can also ruin landscapes, destroy communities, pollute the air and water, trivialise cultures, bring about uniformity, and generally contribute to the continuing degradation of life on our planet.

While this may be a little extreme, it is indicative of the growing view that tourism is not the panacea that it once was, in some cases, made out to be. It is now widely understood that there are many negative impacts that result from tourism.

Similarly, as the growth of beach-based tourism has become widespread, an increasing number of reports show that significant environmental, social, cultural and even economic damage can result (GRIFFITHS and VAN SCHAIK, 1993; INGOLD et al, 1992; WALLACE, 1993; VISKOVIC, 1993; MUIR, 1993). There are many authors who have expressed concern over the negative impacts that have been inflicted on marine ecosystems as a result of coastal and marine tourism activities (HEGERL, 1984; WARD, 1990; MELLOR, 1990; LAYCOCK, 1991). More specifically, there are numerous sandy beach locations where tourism has caused environmental degradation. For example, Smith (1992a) points out that significant environmental damage has resulted from the development of beach resorts in the Asia Pacific region. JACOBSON and FIGUEROA LOPEZ (1994) report on tourists disturbing sea turtles on the sandy nesting beaches of Tortuguero National Park in Costa Rica. Similarly, an article in The Economist (ANONYMOUS, 1988) argues that over-development and overcrowding has contributed to the loss of environmental quality of beaches in the Caribbean. The difficulty is that this loss of quality occurs slowly as a consequence of tourism associated development and use. SMITH (1992b) argues that there is an evolution of beach resort development whereby the effects of development become increasingly negative overtime.

It is useful to review a specific case to illustrate this loss of quality over time.

Case Study: Environmental Deterioration at Hanauma Bay, Hawaii

Hanauma is located on the island of Oahu in the Hawaiian islands, about 15 minutes drive from the city of Honolulu. It is a sheltered cove with a crescent shaped sandy beach. Prior to the 1950s this secluded bay was used by local Hawaiians for traditional food gathering and by occasional fishers and weekend campers. Coral, fish and other marine life were plentiful at this time and use of these resources was small scale. During the 1950s a beach road was constructed from Honolulu to Hanauma, this improved access dramatically changed the numbers of people visiting the beach - a massive increase in use occurred over the next decade (BURGETT, 1980). By 1964 it was estimated that over 1,000 fish and 500 coral...
heads were being removed each year by visitors to the beach using SCUBA and spear-guns. Concern over these impacts resulted in a ban on the taking of all marine life from the bay in 1967 and in 1970 Hanauma was declared a marine park and promoted as a tourist destination (REYNOLDS, 1990).

A number of private tour operators began to run bus tours to the beach for tourists, snorkeling and fish feeding became popular activities for these tourists. The increased use of the area resulted in demands for improved facilities to serve the tourists. The road, improved, parking lots enlarged, restrooms and picnic facilities added. These facilities served to increase the popularity of the beach and concerns over the "carrying capacity" of the location were expressed. Local government funded a study in 1977 to determine the optimum level of use for the park. This study concluded that the carrying capacity of the beach should be set at 1,000 visitors per day. The popularity of Hanauma has continued however, and use of the beach currently numbers around 10,000 visitors each day (BURGETT, 1990). REYNOLDS (1990) estimated that by 1981 over 2 million tourists visited the small beach each year.

Assessing the impacts of this intense recreational use of the beach and adjacent bay has been difficult. However, a number of studies have shown that the biomass (weight) of fish inside the reef crest at Hanauma is very much higher than natural levels while the biomass of other organisms such as coral, sponges and other marine fauna is much lower and declining. Several causes are suggested, first the common practice of fish feeding by tourists from the beach is encouraging larger than normal concentrations of reef fish species that will accept human provided food. Second, direct trampling on benthic organisms by waders, swimmers and snorkelers is destructive. Third, the great amount of silt stirred up by large numbers of people wading in the shallows is harmful to marine life such as corals. Fourth, the saltwater intrusion and urine entering the water as result of large numbers of tourists is harmful. REYNOLDS (1990: 106) states that "by ten o'clock the water is cloudy from silt and there is an oil slick of sun tan lotion on the water ...". Lastly, the fresh water showers installed for tourist convenience on the beach is resulting in higher than normal levels of freshwater run off altering the composition of the near-shore salinity.

The consensus with regard to Hanauma is that the rapid growth of tourist numbers, together with the infrastructure established to service their needs, has produced a severe reduction in the quality of the bay's ecosystem, particularly in the heavily used shallow areas. Hanauma, however, remains incredibly popular. Many now consider Hanauma to be nothing more than a "sacrifice area". A location where the mass tourists can be channeled to concentrate their negative effects in one location thereby reducing the pressure on other bays and beaches on the island of Oahu.

The case of Hanauma is typical of many beach locations that have become popular with tourists. It appears that environmental degradation is inevitable when tourism becomes established. However, there are cases where tourism development has provided the impetus for an improved local environment. For example, one of the major justifications used in the establishment of marine protected areas has been their value as tourist attractions (SALM and CLARK, 1989). Thus, the future environmental quality of sandy beaches is not necessarily negative. There is, however, no doubt that the increasing tourism industry does provide a significant threat to the environmental quality of sandy beaches.

Social and Cultural Impacts

In 1870 the Reverend Francis Kilvert wrote in his diary "of all the noxious animals, the most noxious is the tourist ...": These sentiments are now being echoed around the globe by local people when their communities have become dominated by tourism. For example, Hawaiian activist Puhipau is reported to have said: "I beg you, please don't come to Hawaii. Tourism is killing us, it is literally sucking the life out of us." (1994: 10). His comment illustrates one extreme of the socio-cultural impact of tourism. There are now many nations and regions where the numbers of tourists far outnumber the number of locals and where the area's development, activities, employment and services are so dominated by tourism that the integrity and traditions of the local culture are completely subsumed. This kind of influence over the lives of locals by "outsiders" produces widespread resentment. This has been the case with the beach based tourism development in a variety of geographically dispersed locations, including the island of Skiros in Greece (BOISSEVAIN, 1996), the Caribbean (JOHNSTON, 1990; PATULLO, 1996), in Malaysia (SMITH, 1992b), in Goa, Thailand (NORONHA, 1997) and in Mombassa, Kenya (FRECHTL, 1983).

The impact of tourism development on local communities has been characterized in a model proposed by DOXLEY (1975). He argues that the reactions of a host community to the growth of tourism vary over time in relation to developmental stages. These reactions range from initial cynicism and euphoria as locals consider the possibilities for their location to increasing levels of negative responses as the costs of tourism development to the local community are felt. Eventually a stage of acceptance and/or adaptation to the changes induced by tourism is reached. These kinds of reactions have been observed in the development of beach based tourism resorts. For example, SMITH (1992b: 304) found increasing negative impacts associated with the development of the beach resort at Pattaya, Thailand as it evolved from a beautiful natural beach to a "city by the sea".

Case Study: Tourism on the Beaches of the Caribbean

The forced displacement of the local population from favored areas, particularly beaches, is common in the Caribbean. Prior to the development of tourism on the island of St Thomas, more than fifty beaches were available to the local population for recreation and other uses. However, by 1970 only two beaches remained open to the public, the remainder were reserved exclusively for the use of tourists. This has resulted in widespread resentment amongst the local population (JOHNSTON, 1990). In 1984 one of these remaining public beaches, Magens Bay, was rezoned by the island's government for a tourism development. This re-zoning caused a massive public outcry which resulted in the government being voted out of office (JOHNSTON, 1990). During this protest many strongly worded anti-tourism murals, slogans and graffiti appeared around the island.

The creation of exclusive beach clubs and resorts on the island of Antigua has also stopped the great majority of Antiguans from using the island's best beaches. Access for locals is only possible by purchasing expensive day passes that are beyond the budgets of most residents.

Displacement from traditionally popular areas also occurs when older islanders feel uncomfortable with large numbers of tourists who fail to observe local dress codes and customs (PATTULLO,
Because few tourists visit there, Friars Bay in Antigua has become a "refuge" for locals seeking to escape tourists and partake in traditional beach activities (Pattullo, 1996). A dramatic illustration of the exclusivity of beaches on the island is given by Pattullo (1996). She claims that even the Prime Minister of Antigua was refused entry to a resort controlled beach on the island in 1994.

A further example of the socio-cultural impact of tourism in the Caribbean has been a significant increase in prostitution and crime (Mathieson and Wall, 1982). In Antigua "beach boys" operate on island beaches looking for western women in search of local boyfriends. Payment for their "services" usually takes the form of meals out in restaurants, clothes and other material goods, as well as money (Pattullo, 1996). Female prostitution is also well established on Caribbean islands. In the past some marketing strategies used by Caribbean nations have even tried to deliberately cash in on the sex image (Mathieson and Wall, 1982). Tourism has also created a demand for drugs that are supplied by local dealers. Drug trafficking has also become a serious problem as traffickers often use tourism to mask their activities (Johnston, 1990). Affluent tourists have also provided local street criminals with desirable targets.

**Economic Impacts**

There is no doubt that tourism development has had widespread economic benefits. There are numerous examples of communities, regions and even nations that have been rejuvenated economically with the resultant social benefits of greater employment, better services, improved health and generally improved standards of living. Examples include the valuation of the beaches of Barbados for tourism, at tens of millions of dollars per year (Dharmaratne and Brathwaite, 1998) and the value of beach-based special events such as the 1997 Billabong Pro surfing event held at Kirra Beach on Queensland's Gold Coast (Australia). Kavanagh (1997) found that 32,000 spectators attended the five-day competition and that the net economic impact of the event was around $A2.2 million. So, while some locals may resent the prevalence of tourists in locations like Antigua or Hawaii there is no denying that these same locals benefit from the businesses, services and infrastructure that these tourists support. The reality is, it is difficult to have the good (for example, employment opportunities and improved social services) without the bad (for example, increased traffic and inflationary pressures).

The economic influence of tourism is both pervasive and seductive. It appears to be an industry that needs little capital investment when, for example, the attractions of an area such as sandy beaches already exist. It brings a significant influx of cash into an area spread over a wide variety of service industries such as food, accommodation, transport, as well as on the attraction itself. In addition, these tourists contribute to the taxation revenues of governments (for example, through sales taxes on goods and services) and yet the government does not have to cater to these people longer term (as they are visitors), furthermore, these visitors have little power or interest in election of governments. As a consequence tourism appears an extremely attractive option when governments are considering how best to develop their economies. However, there are a number of cases that illustrate that negative economic consequences can result from tourism developments. For example, Prechtl (1983) found that the development of tourism centered on Diani Beach in Mombasa, Kenya transformed the local economy from one that was diverse and self-sufficient into one that was dependent on tourism and unstable.

It is self-evident that if the tourism activity destroys the attraction upon which it is based then the investment in tourism infrastructure and businesses is lost. Sustainability, is therefore, a critical component of the long-term economic success of any nature-based tourism venture such as those based on sandy beaches. Finding management solutions is, however, extremely difficult. Nevertheless, ways to reduce the negative and increase the positive impacts must be found. A variety of techniques may be appropriate depending upon the unique needs of each situation. The next section considers some of these options.

**MANAGING BEACH TOURISM**

Coastal zone management is an area of specialty in its own right. Unfortunately, however, comprehensive management plans to guide the wise use of beaches and associated resources are scarce. The management of coastal resources is often complicated by the overlapping jurisdictions of regulatory agencies because, often, their geographic span of responsibility ends at mean high water mark (or some similar tidal measure) (Kenchington, 1990). Beaches, of course, exist in both the inter-tidal zone as well as the near shore environment. Furthermore, the ecosystem of the beach environment is often a fragile balance affected by many influences beyond its immediate surrounds. For example, wave action, long shore currents, suspended sediment, estuaries, rivers and water catchments. An additional complication is that every beach is different, dynamic and shaped by a unique set of circumstances. Thus, the management of beaches is not a simple activity. There are, however, a range of management strategies that can be considered in developing approaches to manage tourism and its associated impacts. ORAMS (1995) divided these up into four categories, regulatory, physical, economic and educational.

**Regulatory Management Strategies**

Regulatory management practices are the traditional method of controlling tourist activities (Plimmer, 1992). Rules and regulations are commonly utilized to restrict visitor actions, access, times and numbers. They are usually posted on signs, notices and other written material. Enforcement is usually undertaken by police, park rangers, life-guards or other agents of the management authority. A system of progressively harsher punishment for transgression is most common, for example, a warning at the first offence, banning from the area at a second offence, and eventually, fines and imprisonment can be used in extreme cases of misconduct. Examples of regulations commonly used to manage tourists are visitor number restrictions, limits on times and locations, types of visitor activities permitted, spatial and temporal zoning, restrictions on the types of equipment permitted, noise levels, speed limits, permits, lease and license requirements, and codes of practice.

The purpose of regulatory practices is threefold. First, to protect the safety of the tourist, second, to reduce conflicts between tourists and third, to protect the coastal environment from negative impacts due to inappropriate tourist behavior. As a result of the increasing use of beach areas for recreation and the increasing demand for opportunities for commercial tourist operations, there has been a proliferation of regulations pertaining to beach activities. These regulations often restrict the freedom of beach visitors to do as they wish and there is some evidence that this may reduce enjoyment of the experience (Hatten and Hatten, 1988). Other difficulties
can arise from the cost of enforcing rules, particularly at large and popular beaches such as those that are close to urban areas. Nevertheless, regulation remains the most common management response to increasing pressure from tourism (McARTHUR and HALL, 1993).

Physical Management Strategies

"Physical" approaches to management are those human-made structures that control human activity by restricting or guiding the movement or type of activity which can be undertaken. A typical beach example is the construction of a boardwalk or beach bicycle path. Such structures direct and facilitate movement of tourists walking through sensitive areas or biking directly on the beach. Human-made structures are also utilized to provide additional opportunities and services for tourists. Examples include, piers, boat launching ramps, observation platforms, the provision of beach volleyball courts, the siting of car parking lots, the use of marked water-ski lanes and even the use of grandstands, such as those provided at the Phillip Island Penguin Colony in Victoria, Australia (personal observation).

Because of the difficulties involved with erecting structures in beach environments, physical controls are not a particularly common system used in controlling beach-based tourism. They are, however, a very commonly used technique in terrestrial protected natural area management (YALE, 1991; BUCKLEY and PANNELL, 1992; BURGESS, 1992; McARTHUR and HALL, 1993).

However, the negative impacts of a recreational activity can be mitigated by a combination of regulatory and physical approaches as happens when water ski activities are only permitted in the lanes designated by buoys and signs.

Economic Management Strategies

These types of strategies are those that use prices as incentives or disincentives to modify people's behavior. Although these techniques have received little explicit recognition, their use has occurred in many natural areas for many years (FLIMMER, 1992). An example of this type of strategy is the use of higher entry fees to facilities during peak use times in an attempt to spread visitation. Permits that are auctioned to commercial tourist operators can restrict the number of operators. Imposing fines for littering, taking undersize fish or other inappropriate behavior, is another example of a regulation combined with an economic disincentive. The use of economic strategies has, in the past, been primarily used as a revenue generating exercise for regulatory agencies. However, considerable potential exists to use economic approaches to modify tourists' behavior so that it is more appropriate and less damaging to the local environment and local community. For example, discounts on access fees to a beach could be provided if groups undertake a clean up project during their visit. Fees could be more expensive during times when wildlife is more sensitive to disturbance thus providing an incentive for tourists to visit at other times. Most marine resources are managed by publicly funded government organizations. Given the increasing financial pressure under which many of these public management agencies find themselves, the opportunity to utilize economic techniques to generate additional funds, and accomplish management objectives, may be a worthwhile approach.

Educational Management Strategies

The goals of education-based management strategies are to reduce the incidence of inappropriate tourist behavior by encouraging a voluntary behavior change, and to increase visitor enjoyment and understanding. Many authors therefore, view education as a potential "win - win" situation for both the marine environment and the tourist (FORESTELL, 1990). However, the use of education as a management strategy in tourism situations has not been as common as the use of physical or regulatory techniques. This is due to a number of factors that make the planning and implementation of an effective education program for tourists particularly difficult (BECKMANN 1988). Factors include, the diverse characteristics of tourist groups such as different group size, age and educational attainment. As a result, the needs of each tourist are unique and are difficult to cater for in the design of an educational program. This is further complicated by the "non-captive" nature of beach-based tourists, that is, tourists are usually free to come and go as they please and will often "vote with their feet" and leave when educational programs do not meet their needs or hold their interest. In beach settings, the diverse number of locations, the mobility and geographical spread of tourists, often make it difficult for an education program to be scheduled at a time, or located at a place, where tourists will be exposed to it. These factors result in little use of education as a management strategy and the predominance of physical and regulatory approaches.

Figure 3. Beach clean up bags at Island County beaches, Whidby Island, Washington, USA.
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However, it should be remembered that many tourists are willing to give of their time, money and labor, in order to assist with nature and beach conservation. Given suitable programs that are well promoted, it is possible to prompt tourist actions that directly contribute to the environment while they are visiting it. For example, through assisting with rehabilitation projects, by removing litter, or by acting as volunteer "beach wardens" for the management agency so that other tourists actions are not detrimental to the environment (Figure 3).

Wilderness and Conservation Issues

An additional relevant issue with regard to the management of coasts and sandy beaches is their value as an integral part of marine ecosystems. It is important to remember that sandy beaches have value beyond their use as a tourism resource. Thus, a legitimate management option is to allow no development or use by humans. There are now few, if any, sandy beaches anywhere on earth that are not influenced by human activity. The well-known North American conservation writer Aldo Leopold recognized the risks as far back as the middle of last century.

Wilderness is a resource which can shrink but not grow. Invasions can be arrested or modified in a manner to keep an area usable for recreation, or for science, or for wildlife, but the creation of new wilderness in the full sense of the word is impossible. One of the fastest - shrinking categories of wilderness is coastlines. Cottages and tourist roads have all but annihilated wild coasts. No single kind of wilderness is more intimately interwoven with history and none nearer the point of complete disappearance. (LEOPOLD, 1949: 194).

Conservation of high quality sandy beaches and their protection from human influence is, therefore, an important management issue to consider. Beautiful and pristine sandy beaches should not all be viewed as simply resources for human enjoyment. Some must simply be left alone (Figure 4).

PROBLEMS AND CHALLENGES FOR THE NEW CENTURY

Despite the significant efforts being made to mitigate the impacts of beach-based tourism in programs such as coastal zone management, marine park and protected areas, management plans, and fisheries management systems, the reality of ever increasing numbers and fixed resources remains. Our interest in beach-based recreation seems unlikely to abate. Increasing interest in and use of the coastal and marine environment has been a long-term trend. Furthermore, it is certain that our invention of new ways to access the sea and utilize it for recreational purposes will continue to increase. The result of these two basic trends is simple, beach-based tourism will continue to grow in popularity. Because of the increasing demand, the supply of high quality sandy beaches will become a critical issue.

Supply of beach tourism opportunities is constrained by several important factors. First, the number of high quality sandy beach environments is limited, as a result, a significant factor will become environmental quality. Tourists do not want to conduct their recreational activities in polluted areas. Thus, management of coastal and marine resources in order to maintain, or improve environmental quality will become the major challenge in the next millennium.

A further issue with regard to beach-based tourism will become cost. A basic economic principle - high demand and scarce supply...
- will continue to force the cost of coastal recreational activities up. Many cultures regard free access to and use of beaches and coasts as a basic human right. However, it is already obvious that access to high-quality areas and popular activities, in some areas, is only afforded by the wealthy.

A further issue derived from increasing demand and limited supply is the conflict between incompatible activities. This is common in popular areas now, it will escalate over the coming decades. Sun-bathers will compete with beach volley ball players who wish to use the same area of beach. Jet skiers who wish to wave ride and wave jump will endanger surfers who wish to use the same "resource". Wildlife watchers will conflict with water skiers who wish to use sheltered bays and beaches for their sport. Indeed, all of these conflicts are common today, they will be an increasing challenge for beach and coastal resource managers in the future.

An additional factor that should be noted is that most degradation of coastal and marine resources is not the result of tourists nor their activities. The damage caused by the pollution of our coastal environs from human activities on land and from commercial use of our oceans for fishing, the dumping of waste, dredging, oil supply and so on far outweighs the influence of tourism. These influences do, of course, effect tourism and tourists' perception of the quality of their experiences. An example of this has occurred at the Padre Island National Seashore in Texas, research there by ROEHL and DITTON (1993) found tourists' satisfaction was significantly influenced by the pollution created by the offshore marine industry. It is important to recognize, therefore, that the future of beach based tourism is inextricably linked with all other human activities which affect the sea and coastlines.

The future for coastal and marine resources is considered by many to be bleak. However, there are a number of cases that show positive results. Large numbers of people who wish to use beach environments for recreation and who value high quality natural environments can produce positive change. The marine conservation movement, while not as well established as terrestrial equivalents, appears to be gathering momentum. Save the oceans campaigns, beach clean-ups, the protection or beach environments can produce positive change. The marine environments for recreation and who value high quality natural positive difference through their efforts. One of the most significant shown that humans who care about things marine can make a difference. Conservation is a human right.


LITERATURE CITED


