

Coastal Research Library 26

Nelson Rangel-Buitrago *Editor*

Coastal Scenery

Evaluation and Management

 Springer

Coastal Research Library

Volume 26

Series Editor

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Timeless scientific knowledge goes into the core of all natural phenomena and unites us across cultures, continents, and centuries. We dedicate this book to scientists who work for the benefit of mankind.

Foreword

The aesthetics of landscape, in this particular case coastal seascapes and shore, is difficult to tackle. The general subject area of “beauty” along the coast is considered in this volume in terms of methodological approaches to evaluation of coastal scenery. To some, this topic is esoteric and yet to others it has very specific practical applications to tourism. With increasing numbers of tourists visiting the coast, many shorefronts and beaches with densely populated hinterlands reel under the effects of overuse through density impacts associated with overpopulated beaches, for example, in China and elsewhere. The evaluative process is complicated by cultural norms of what is acceptable from environmental and socioeconomic points of view along different shores. Beach crowding in China or other Southeast Asian countries may locally be considered normal, whereas in other regions with more sparsely populated inland regions the beach space utilized by beach goers might appear to be under utilized. Cultural perception is conditioned by floating data points that make up impressions of what is beautiful or ugly. Whatever perceptual conditioning is extent along a particular coast, most beach users regard various aspects of pollution, on the shore or in the water, as unacceptable environmental conditions, but the range of acceptance is variable depending on the geographic region.

With this backdrop in mind, it is laudable that the authors of the seven chapters posit new methods for evaluating perceptions of beauty as part of scenic assessment techniques. Suggesting approaches to the study of landscape or scenery is based in the first instance on a review of prior efforts to describe the critical factors that are involved in the perception of what is beautiful or scenic. Determining the elements of the landscape that are involved here turns out to be a difficult task that is fraught with many difficulties.

Nonetheless, chapters in this book advance our understanding of how to better understand social mores associated with tourism and assess different approaches to evaluating and quantifying what is beautiful and desirable along the shore. As explained in this volume, it often is a delicate balance between sustaining scenic coastal landscapes and economics when the sheer volume of tourists strains coastal resources to the breaking point of land and water degradation. Such despoliation by the pressure of human bodies in limited spaces such as provided by beach berms is

a very real problem in high user areas. Exploited here in various discussions are considerations of methods for achieving maximum use that provide reasonable economic returns without destroying the quality of that which was originally sought. Sustainability is a common buzzword these days, but the intensive use of many coastal environments is not possible, and limitations or restraints of human activities are required to conserve what is regarded as aesthetically desirable coastal segments.

Many advances in landscape assessment are supported by evaluation of maps, aerial photographs, and satellite images in digital formats that are amenable to study using GIS and computer modeling programs. These tools are critical resources that aid decision-making and natural resource planning at various levels where landscape characteristics, qualities, and influences on the landscape are recorded and evaluated. Landscape character assessment is, however, a complicated process that requires different levels of expertise in several endeavors such as geology, biology, environmental science, history, and socioeconomics. All of these approaches can be accommodated in modern GIS frameworks that help to classify landscape into areas of distinct visual and sensory character. These seascape character assessments are now maturing into codified approaches that help coastal managers suggest or adjust the fair and reasonable use of coastal resources for the benefit of stakeholders, tourists, and the environment itself that must be protected from uncontrolled human pressures. Readers of this book are thus introduced to the most up-to-date approaches for evaluating coastal scenery that include but which are not limited to descriptive inventories, public preference models, and quantitative holistic techniques that include psychophysical and surrogate component models.

This work is a requirement of coastal scenery evaluation because human pressure on coastal marine resources has reached the breaking point where once beautiful seascapes are now being loved to death. The virtual pressure of human body space along the coast and support resources for tourism (e.g., food and bathroom facilities, shops, motels and hotels, concession stands, travel agencies, emergency assistance, etc.) can adversely impact the coastal scene unless managerial positionalities are implemented according to the societal norms of the region. The authors provide here multi-pronged insights into the factors that make up coastal landscapes that are in turn evaluated in terms of their role in determining what constitutes scenic beauty.

Asheville, NC, USA

Charles W. Finkl

Preface

Countries with superb coastal scenery have an invaluable “plus effect” because the coast is an ideal place for tourism. It is necessary to remember that a well-managed coast is a perfect space in which social and economic activities can be done on a multiplicity of spatial and temporal scales obtaining an endless number of beneficiaries.

This book describes an easy to apply methodology to determine scenic value of the coast. As one of the most critical aspects of beach user choice, the determination of coastal area scenic quality is of primordial importance stated later.

This work is the first book to present a semiquantitative analysis of coastal scenery based on more than 4000 interviews about people’s desired coastal preferences. Twenty-six parameters can be used to identify any coastal scene, which has been then subdivided into five attribute categories, weighted and subjected to fuzzy logic mathematics to obtain a decision number (D). This D number represents coastal scenery at that point, and five D classes are then presented (I – excellent to V – poor). Heritage areas and national parks should lie in Class I, which infers top scenic quality.

This book contains 7 chapters written by 6 authors from different parts of the world (Colombia, Italy, Malta, Turkey, and Wales), which between them, and over a time span of a decade or so, have assessed more than 952 global locations using the technique given in this book. One of the main aims of this method is to point out how scenic areas may be improved by judicious intervention relating to parameters, mainly anthropogenic, chosen for assessment.

The content of this book wants to open perspectives for analysis of the potential for coastal tourism development in natural areas together with landscape quality improvement in current coastal tourist developed areas. It will be a helpful tool for coastal lovers that include users, teachers, researchers, and managers.

Barranquilla, Colombia

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Chapter 1

Coastal Scenery: An Introduction



Nelson Rangel-Buitrago, Allan T. Williams, Ayşen Ergin, Giorgio Anfuso, Anton Micallef, and Enzo Pranzini

*'Mir hilft der Geist; auf einmal she'ich Rat.
Und schreibe getrost. Im Anfang war die Tat.'
Goethe, Faust Part 1, lines 1236–7*

Abstract Coastal tourism includes those recreational activities which involve travel away from one's place of residence which has as their host or focus the coastal zone. This industry necessarily depends on the coastal environment to attract tourists. Excellent scenery is maybe the prime factor considered by a potential tourist when is time to choose a coastal vacation destination. Coastal scenery management, a controlled tourism growth, an enhancing of the product, the constant upgrading of

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the quality of offer and service, as well as a diversified clientele, can be considered as critical points for an ideal tourism development that will satisfy both visitors and those whose livelihood depends on it.

1.1 Introduction

It is so small a thing to have enjoyed the sun. Mathew Arnold, Empedocles on Etna, 1, ii, 397

Coasts are the most dynamic and valued geomorphological features on the surface of the earth (Pilkey and Cooper 2014). They serve as home to a multitude of living organisms, including humans and are in continuous change due to a large variety of processes. From ancient times, coasts have played a significant role as a place for human settlement and economic development (Barragan and Andreis 2015). ‘*The coastline is of special importance*’ (Steers 1944, 5), however, it is a very fragile environment easily affected by disordered infrastructures emplacement and activities, such as, industry, tourism, agriculture and fishing, amongst others.

During past years, there has been overdevelopment of many of these areas due to an unbridled pursuit for further economic benefits. This has led to an increase in environmental impacts due to processes that includes, amongst others, sand mining (Rangel-Buitrago et al. 2015a, b), beach pollution (Williams et al. 2013), and coastal armoring (Pranzini and Williams 2013).

The invaluable significance of coastal landscapes to society has long been recognized and is reflected by the plethora of existing protection status areas, such as, National Parks, Heritage Coasts, Wilderness Areas, Protected Landscapes and Areas of Outstanding Natural Beauty. However, despite the existence of these entities whose designations are strongly influenced by scenic beauty, scenic degradation globally greatly affects many coasts.

In the last few decades, the number of people able to visit coastal zones for recreational purposes has increased exponentially and correspondingly a popular desire to protect and conserve beautiful scenery has also risen over this period (UNEP 2009; Miller et al. 2010; UNWTO 2016). Frequently, coastal stakeholders and decision makers have been faced with a complicated question: **Should landscape development be impaired for the sake of conserving the natural scenery, or vice versa?** This can only be answered by determining what landscapes are favoured by society as a whole and this requires evaluation of the relative quality of coastal scenery by Governments in order that it can be compared to those of other landscapes and to the needs of other resource users. After all, ‘*coastal scenery is a resource, partly because of the economic value and partly because it is an accepted component of resource assessment programmes*’ (Kaye and Alder 1999, 303–304). Evaluation of a coastal landscape is important as it provides measurement, description, and classification schemes (Dakin 2003; Ergin et al. 2004; Rangel-Buitrago et al. 2013), giving means by which scenery/amenities can be compared against other resource considerations (Ergin et al. 2006). It is a visual expression of the coast, and is a great resource that has not been analysed in detail on any scientific basis.

In addition, it can improve resource inventories, carrying capacity decision making, and can be included into Environmental Impact Assessments (Ergin et al. 2004). Coastal scenic evaluations allow managers to determine the relative attractiveness of locations so that informed decisions concerning improvements to the scenic quality of the landscape and their management may be made.

While this applies to all world landscapes, it is of particular importance to coastal scenery. Worldwide coastal scenery problems are further amplified by a tourist industry that is struggling to fill gaps left in the world economy by the decline of heavy industry and a rise in general affluence (Williams and Ergin 2004). The coastal tourist industry mainly depends on beaches to attract tourists (Botterill et al. 2000; White et al. 2010) and many diverse studies have shown that excellent coastal scenery is one of the major factors considered by tourists when choosing a beach vacation (Miller 1993; Unal and Williams 1999; Jędrzejczak 2004; Williams et al. 2016).

Scenery may be defined as *'the appearance of an area'* (Council of Europe 2000) and is a part of a coastal landscape inventory available for different coastal disciplines, such as, geography, geology, planning, etc. Likewise, coastal landscapes can be described as a littoral area, as perceived by humans, whose character results from the multiple interactions between natural and/or human factors (Council of Europe 2000).

Inside this book the reader can find an exhaustive review of existing scenery evaluation techniques, and can also obtain a novel methodology for coastal landscape evaluation, the Coastal Scenic Evaluation System (CSES) presented in Chap. 4, which is applied and presented by worldwide cases studies. However, it is salutary to note the words written over 70 years ago by a world leading coastal geographer that *'any assessment of coastal scenery is likely to meet with criticism'* (Steers 1944, 6). A series of recommendations is also given for adequate coastal scenery management.

Over a time span of a decade or so, the authors of this book have assessed more than 952 global locations by the technique given in Chaps. 4 and 5. Coastal/beach management, mainly driven by the tourist industry and appropriate government policies (designation of National Parks, Areas of Outstanding Natural Beauty, among others) has improved immensely and therefore the figures given here for coastal scenery may not represent the current situation. We urge readers to visit places mentioned in this book and assess their scenic value in order to realise an up to date figure for that particular location. One of the aims of the technique is to point out how scenic areas may be improved by judicious intervention relating to parameters, mainly anthropogenic, chosen for assessment.

The content of this book aims to open perspectives for analysis of the potential for coastal tourism development in natural areas and for scenic quality improvement in current coastal tourist developed areas. It will be a helpful tool for coastal lovers that includes users, teachers, researchers, and managers.

1.2 What Is Coastal Tourism?

Travel makes one modest. You see what a tiny place you occupy in the world. Gustave Flaubert

Despite it not being an easy task to provide an all-encompassing definition of tourism, this activity can be defined as the promotion and sale of the enjoyable and other features of a particular travel destination provision of facilities and services for pleasure travellers (UNWTO 2016). Tourism is an active, dynamic and competitive industry that demands the ability of continuous adaptation to customers' changing needs and desires, as client satisfaction, safety, and enjoyment is the main focus of the tourism business (WEF 2016).

The tourism industry is a complex activity, one that can be developed along distinct destination and environment lines, where a diversity of cultural, social, environmental and physical attractions exists. Increased tourism activity can kick start economic development within an area and consequently act as a catalyst for other related activities, which develop because of tourism. However, this can create negative impacts on sustainability, which in many cases are larger than the benefits that tourism brings (UNEP 2009; Holzner 2011).

Coastal Tourism, also known as **Sun, Sand, and Sea tourism (3S)** is based on a very particular resource conjunction along the interface between land and sea. This kind of activity offers amenities, such as, good weather conditions, water, beaches, scenic beauty, biodiversity, cultural and historical heritage, healthy food, and under optimal conditions an adequate infrastructure. With regard to visitor numbers and income generated over the past few years within the overall tourism sector, the 3S tourism market, is by far the most significant (UNTWO 2013). Among tourist destinations, coasts, are probably the prime factor favoured for visitor preferences (Lencek and Bosker 1998; Honey and Krantz 2007; Houston 2013). For example, the Mediterranean region is the world's leading tourist destination; almost one-third of global income from tourism is generated inside this region (UNTWO 2016).

Global studies reveal that the growth of 3S tourism has peaked in the last few decades (Miller 1993; Hall 2001; Moreno and Amelung 2009; Williams and Micallef 2009; Rangel-Buitrago et al. 2013). Its economic importance is unquestionable and its growth is strongly related to the natural physical characteristic e.g. scenery, as well as, socio-economic features of the receiving coastal area, such as, local community interests, health, political and security factors, together with the traditional models of tourism (UNEP 2009).

Some benefits that a well developed 3S tourism can generate include:

- Revenue generation and international receipts.
- Construction of Infrastructure and community facilities.
- Generation of new jobs and prosperity.
- Increasing awareness of the need for conservation.
- Production of sustainable community livelihoods.
- Investment in the environment and cultural heritage.
- Planning for potential end use (planning, environment tourism state and municipal authorities and academia).

One of the major issues that 3S tourism must resolve is the actual conflict between different benefits that provides this kind of activity and its effects on the coastal environment. These effects on coastal scenery can include:



Fig. 1.1 Examples of unsustainable developments along coastal areas with direct impacts over the environment. (a) Vegetation destruction by illegal buildings over the hills at Taganga Beach and (b) overdevelopment and armouring of buildings at Cartagena City, both located on the Caribbean Coast of Colombia. (c) Over population along Monte Carlo, Monaco and (d) Dune destruction and building construction in Mediq, Morocco

- Loss of habitat and biodiversity.
- Physical destruction and loss of amenity.
- Pollution.
- Property development patterns and motives.
- Resource consumption and competition.
- Limited community engagement and benefit.
- Seasonality and sensitivity of demand.

In some cases, coastal tourism activities are a process where any kind of decision is based on financial criteria, whilst the coastal environment is taken into account only when it is strictly necessary to minimize adverse effects that can threaten economic profit. A diversity of studies support this, for example, Lenceck and Bosker (1998), Defeo et al. (2007), Hughes and Duchain (2011), Pilkey and Cooper (2014).

This kind of process can lead to a chaotic and unsustainable development of coastal areas, which not only affects the environment but, in the medium term also severely impacts the different benefits of tourism since it modifies and destroys the sustenance of the tourism activity in these coastal areas: **Scenery** (Fig.1.1). The challenge here can be summarized in a very simple question that demands a smart answer: **How to develop a 3S tourism that will not minimize the quality of the natural resource and benefits to stakeholders?**

1.3 The Importance of Coastal Tourism (The 3S Market)

Twoflower was a tourist, the first ever seen on the disc world. Tourist, Rincewind had decided, meant 'idiot'. Terry Pratchett, *The Color of Magic*

Worldwide occur well dated antecedents that resemble current modern tourism, e.g. Herodotus and his attitudes to mobility, Cleopatra and Mark Antony with their own beach (Cleopatra's beach, Sidar Island, Turkey), Roman leisure travel along the Mediterranean coast (Greece – Egypt), and medieval pilgrimages. However, the well-known 3S tourism began under the Roman Empire with construction of the first hotels along the Italian peninsula (Baranowski et al. 2015). Through the following centuries, particularly from the eighteenth century onwards, 3S tourism was generally tied to therapeutic properties found at the coast. Sun, sea, and sand have throughout time provided the essential ingredients for coastal tourism until today and especially at the end of the twentieth century, which was clearly defined by the development of mass tourism (UNEP 2009).

Currently, tourism is one of the seven largest business sectors of the world economy (EEA 2006; UNTWO 2016). Their Gross Domestic Product contribution ranges from 2% for small scale tourism countries where tourism weighting can be significant, to more than 10% in countries where tourism is well developed (Briguglio 1995; Honey and Krants 2007). The industry generates one in twelve jobs globally, and between 35–40% of the world's export services (UNTWO 2016).

Since 1990, international tourism receipts have grown by 365%, moving from 271 to 1260 Billion US\$ (UNTWO 2016). Despite there being no exact data on coastal tourism alone, the 3S industry is considered to be one of the largest-growing forms of travel in the last three decades and all 10 of the world's top destination countries in 2016 were countries with coastlines (Table 1.1). If the tourism industry were compared with a single country, it would have one of the world's major GDP's

Table 1.1 World's top 10 destination countries in 2016 with their related tourism statistics

Rank	Country	International tourist arrivals (× 1000)				International tourism receipts (US\$ million)			
		2010	2013	2014	2015	2010	2013	2014	2015
1	France	77,648	83,634	83,701	84,452	47,013	56,562	5815	4592
2	United States	6001	69,995	75,022	7751	13,701	177,484	191,325	204,523
3	Spain	52,677	60,675	64,939	68,215	54,641	62,637	65,111	56,526
4	China	55,665	55,686	55,622	56,886	45,814	51,664	10,538	114,109
5	Italy	43,626	47,704	48,576	50,732	38,786	43,912	45,488	39,449
6	Turkey	31,364	37,795	39,811	39,478	22,585	27,997	29,552	26,616
7	Germany	26,875	31,545	33,005	34,972	34,679	41,279	43,321	36,867
8	United Kingdom	28,296	31,064	32,613	34,436	32,892	41,624	46,539	45,464
9	Mexico	23,290	24,151	29,346	32,093	11,992	13,949	16,208	17,734
10	Russian Federation	20,262	28,356	29,848	31,346	8831	11,988	11,759	8465

Source: UNWTO (2016)

and would use the same resources at the scale of a developed country, such as, Norway or Sweden. Worldwide, tourism ranks third as a global export category after oil and chemicals products, and ahead of food and automotive parts. In many countries tourism ranks as the first GDP contributor (e.g. Aruba, Malta, Spain). Tourism is now increasingly an essential component of economic diversification, both for advanced and emerging economies. Even, in the last few years, this industry has shown a capacity to compensate weaker revenues in many countries.

For example, The Caribbean, is a 3S tourist destination par excellence, where international tourist arrivals grew by 5.1 million (+27%) in the 2010–2015 period. This growth was driven by Cuba (+18%), Aruba (+14%), Barbados (+14%), Haiti (+11%), the Dominican Republic and Puerto Rico (both +9%). For South American countries, coastal tourism represents one of the most important economic activities. The development capacity of the Colombian 3S market appears to be almost limitless, with an increase of 593,000 international arrivals between 2010 and 2015 (MinCIT 2016; Rangel-Buitrago et al. 2018). The tourist industries rapid growth meant an increase of almost US\$ 270–290 million per year for the Colombian GDP (Rangel-Buitrago et al. 2015a, b). The GDP relating to tourism activities (>US\$ 3600 million in the balance of payments for travel/transportation), is the third highest source of foreign exchange after oil and coal, exceeding exports of coffee, and others products (ANATO 2015).

The Mediterranean coastal area tourist growth rate confirms its role as a primary bathing destination. Tourism, mainly 3S tourism, grew by 5% in 2015, with Spanish beaches, the sub-region's top destination and Europe's second largest, posting a 5% growth, and receiving a record 68 million international arrivals. Other coastal established destinations, Slovenia (+12%), Portugal (+10%), Croatia, Cyprus (both +9%), Greece (+7%) and Malta (+6%) reported strong results; emerging coastal destinations such as, Albania, Bosnia and Herzegovina, FYR Macedonia, Montenegro, and Serbia all reported double-digit increases (UNTWO 2016). The influence of 3S tourism is so high that peak population densities on the Mediterranean coast of Spain and France can reach 2400 people per square kilometer, this value is more than double those found in the winter season (EEA 2005).

The tourism industry has demonstrated a high ability to recover from short-term setbacks. The UNTWO (2013) recorded in 2009 a significant decline in global arrivals as a result of the world economic recession; 2010 recorded a growth. Despite possible future fluctuations, international visitors worldwide are expected to increase by 3.3% in the coming 13 years to reach 1.8 billion by 2030 (UNWTO 2013, Fig. 1.2). In addition arrivals in emerging coastal destinations (+4.5% a year) are expected to increase almost at twice the rate of those in advanced established economies (+2.3% a year).

The economic significance of coastal tourism is unquestionable, despite the fact that there has been some changes in coastal tourism demand. Rest and relaxation, based on sun, sea, and sand, remains the baseline, however, there has been a significant growth in the range of conditions that coastal tourists are seeking. These include:

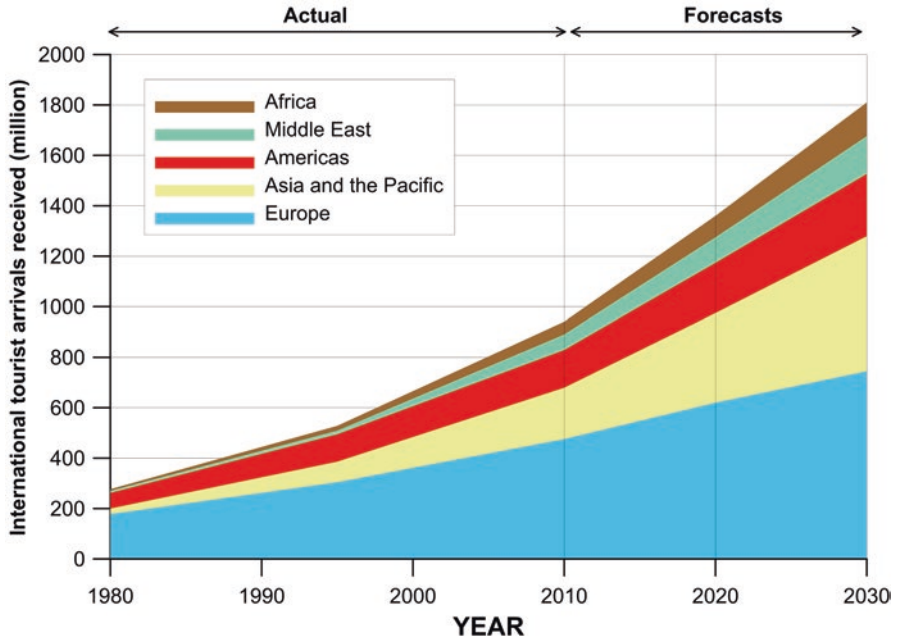


Fig. 1.2 Actual trends and forecasts of world tourism industry for the 1980–2030 period. (Data Source: UNWTO 2016)

- The quality of the environment and demand for clean and unspoiled locations.
- Availability of marine and coastal recreational activities.
- Excellent facilities.
- Nature and wildlife in optimal conditions.
- Presence of cultural attributes.
- Interest in combining coastal opportunities with other experiences through excursions.
- Use for the ecotourism.

The conditions mentioned above have a common characteristic, i.e. they are strongly related to **Coastal Scenery**.

1.4 Scenery as a Resource for Coastal Tourism

Mountains are the beginning and end of all scenery. John Ruskin, Modern Painters

Coastal development has always been strongly dependent on natural resource exploitation, among which is scenery. A coastal area in optimal conditions means millions of dollars profit (Clark 1996). Beach user's play a significant role in successful coastal tourism because they are the driving force and also the last receptor

of the related economy. Many coastal countries must increase their tourist derived economic profits to be competitive and for this reason, it is critical to know beach user's preferences.

In regard to beach tourism, the above leads to an important question: *What do visitors rate highly?* The main answer is the bathing area, and from more than 4000 surveys carried out on beach user preferences worldwide, beach users were found to be primarily interested in the following five parameters in the order of which can change according to beach typology (Williams 2011):

- Safety.
- Facilities.
- Water quality.
- Litter.
- Scenery.

It is Coastal Scenery, as shown by Ergin et al. (2004), Ullah et al. (2009), Rangel-Buitrago et al. (2013), Anfuso et al. (2014), among other authors, that is the goal of this book.

Since time immemorial, coastal scenery has always been a challenge to assess (see Chap. 3) and a source of inspiration for people and it can be considered as a resource for development in more than an economic sense. It can be exploited to generate employment and income, as well as developing the economy, but it is also a resource for other kinds of development (Hudson 1986). The impact of scenery on coastal tourism market is large and its influence in attracting visitors is much greater than shown in most existing beach award schemes (e.g. Blue Flag), as scenery is rarely mentioned (Van der Merwe et al. 2011; Lucrezi et al. 2015). But these schemes have been shown to not play a significant role in tourist's motivation to visit beaches (Mckenna et al. 2011).

Part of the lure of coastal scenery is the human image of a beautiful tropical beach. For many tourists this may be an undifferentiated image where in their minds, there exists a perception of a generalised amalgam of palm-fringed, white sand beaches washed by clear blue waters overlooked by luxuriantly forested mountains with cascading streams and exotic flowers and fruits, all under excellent weather conditions (Hudson 1986). After all, '*all our knowledge has its origins in our perceptions*' (da Vinci 1891). In some locations this idyllic panorama exists, however, scenic degradation is currently a big issue as in order to benefit from tourism arrivals, many coastal countries utilize growth policies which can devastate the coastal strip (Benoit and Comeau 2005; Martinez del Pozo and Anfuso 2008; Williams et al. 2018). For example, along the Mediterranean region, during the last two decades, 40% of the coastline has been lost to buildings, and by 2025, 50% would be irreversibly artificial (Benoit and Comeau 2005). A high density of buildings can currently be observed along several coastal areas worldwide, such as, Colombia, France, Italy, Mexico, Spain, where the built-up area exceeds 55% (EEA 2006, Fig. 1.3).

Benoit and Comeau (2005), showed that some 60% of locals interviewed in Italy and Spanish studies, commented not only upon poor planning on growth but also on



Fig. 1.3 Examples of changes in the density of constructed areas related to coastal tourism industry. Images (a) and (b) changes between 1975–2016 at El Puerto de Santa Maria, Cadiz (Spain), Images (c) and (d) are changes between 1954–2014 at Rodadero Beach, Magdalena (Colombia)

landscape degradation. For example, it is almost an axiom that when an island, such as, Malta, Aruba or Curacao can triple its summer population, some scenic degradation is bound to occur and this will ultimately affect tourism. Degradation affects a landscape immensely and scenery is therefore a vital component for the 3S market and drives the economy of many coastal countries, as beaches are under pressure from anthropogenic development and utilization (Ergin et al. 2006; Rangel-Buitrago et al. 2018). An adequate environmental management strategy, including effective physical planning, is necessary if coastal scenic quality is to be maintained. It is to be recalled that coastal scenery can be considered as a renewable resource because it can be sold to the tourism market and at the end, you can still have it. . . . of course, if it is well known how to preserve it!

1.5 Coastal Scenery Impact

Walking is a virtue, tourism is a deadly sin. Bruce Chatwin, What Am I Doing Here?

Countries with superb coastal scenery have an invaluable ‘plus effect’ because the coast is an ideal place for tourism. It is necessary to remember that a well-managed coast is a perfect space in which social and economic activities can be done in a multiplicity of spatial and temporal scales obtaining an endless number of beneficiaries.

In this regard, it is critical to differentiate between two concepts narrowly related, often erroneously seen as synonymous that can affect scenery and **consequently** any optimal coastal development: tourism growth and tourism development. Tourism growth can be measured in the number of arrivals, overnight stays, among other variables, which do not necessarily mean adequate economic prosperity (Ashley et al. 2007; UNEP 2009). Furthermore, tourism development refers to the increase in local income and employment, as well as, environmental benefits, thus implying the presence of development planning by the carrying capacity of the receiving environment (Neto 2003; UNEP 2009). Therefore coastal scenic deterioration can affect both growth and tourism development, and both can negatively influence coastal scenery.

In many cases, the urgency to obtain a faster economic profit derived from the 3S tourism has led to an uncontrolled and often elevated growth of this activity, which affects coastal scenery negatively. This was the case of Antigua and Barbuda (Kanji 2006), Belize (Diedrich 2010) and Jamaica (Henry 1988), that had to restart a wrong 3S tourism strategy based on an accelerated growth rate with the purpose of obtaining better results and preserving the coastal scenery resource. The above confirms that strengthening national economies by opting for quick economic profit from the tourism industry, is not necessarily the best alternative.

The observed growth of coastal tourism in the last decades is related to three main factors (EEA 2001; UNTWO 2016):

- Improvements in transportation systems.
- Increased personal incomes and leisure time.
- Knowledge of new world destinations due to improved communications.

Unfortunately, this growth has generated critical pressures on environmental and cultural resources of coastal areas and also has negatively impacted the economic, social and cultural patterns of some tourist destinations. However, with the increase in mass tourism in coastal zones, people involved in the investment and tourism management are increasingly aware that sustainability is strongly dependent upon the quality of these particularly fragile environments (UNEP 2009; Williams et al. 2016). As mentioned, 3S tourists want a diversity of experiences, in a lively and distinctive natural environment. Similarly, people living in coastal tourist destinations are increasingly aware of and concerned about their natural, historical and cultural heritage (CoastLearn 2009; Rangel-Buitrago et al. 2018).

An optimal coastal scenery management (Chap. 7), accompanied by a controlled tourism growth, an enhancing of the product, by upgrading the quality of offer and service, as a diversified clientele, can be considered as key points for an ideal tourism development satisfying both visitors and those whose livelihood depends on it. The above is the essence of “**Sustainable Tourism.**” For example, during the last decades, the Rapa Nui population have enhanced coastal scenery by means a controlled tourism development, based on a constant upgrade of the quality of offer and service without leaving behind their own native traditions (Figs. 1.4 and 1.5).

To reduce tourism induced problems and secure both coastal resources and the sustainability of the tourism industry, significant attention must be paid to integra-



Fig. 1.4 Ahu Tongariki in Easter Island (Chile) an optimal coastal scenery management scenario



Fig. 1.5 Ahu Tongariki in Easter Island (Chile) an optimal coastal scenery management scenario

tion of 3S tourism into Integrated Coastal Zone Management (ICZM; UNEP 2009) now subsumed into Marine Spatial Planning (MSP).

For an optimal management of tourism development, it is of utmost importance to focus on appropriate planning of tourism growth taking into account scenery quality and the capacity of local systems (Chap. 6). Inside the ICZM/MSP framework, tourism is identified as one of the most important activities in coastal areas (Dodds and Kelman 2008; Williams and Micallef 2009; Haller et al. 2011). Diverse activities

initiated by organizations e.g. the United Nations Environment Programme (UNEP), European Union (EU), European Environment Agency (EEA), United Nations World Tourism Organisation (UNWTO), all have highlighted the need to promote the implementation of actions for ICZM/MSP in different spatial – temporal scales. The ICZM/MSP approach provides a comprehensive set of measures associated with its development cycle, and today, these are widely applied worldwide. However, establishing its consistent and complete implementation within the 3S tourism sector remains a current challenge for all stakeholders. Coastal Scenery evaluation (Chap. 4) is a powerful tool that helps in sustainable development of tourism in coastal areas under the ICZM/MSP umbrella; it also provides invaluable baseline information and a scientific basis for any envisaged coastal development plan.

Reduction of tourism-induced issues and securing both coastal resources and sustainability of the tourism industry, demands greater attention to adequate management and better integration of tourism in coastal development. Conflicts and adverse impacts are due mainly to lack of understanding of coastal environments and weak, in some cases non-existent, management. A better knowledge of the physical environment of coastal areas, the identification of existing and potential uses and the development of integrated strategies and plans, offer the solution for a more socially and environmentally active development process (Ashe 2005; UNEP 2009).

1.6 Conclusions

'In a world of time and change there is no last chapter. The story never ends in a full stop.' A J Toynbee (1969) Experiences, 331

The world faces critical environmental issues and environment protection and conservation of natural resources at local and global scales are becoming more imperative. For this reason more than ever, diverse scientific disciplines must converge to provide necessary environmental solutions. Different management tools, such as Scenic Evaluation given in Chaps. 4 and 5, applied at an adequate stage of tourism development planning and within a clear regulatory and legislative framework, are a real guarantee of the sustainability and durability of tourism activity and its harmonious coexistence with other activities inside a well-preserved coastal environment.

References

- ANATO (2015) Compendio de estadísticas turísticas de Colombia para el año 2015. ANATO, Bogota
- Anfuso G, Lynch K, Williams AT, Perales JA, Pereira da Silva C, Nogueira Mendes R, Maanan M, Pretti C, Pranzini E, Winter C, Verdejo E, Ferreira M, Veiga J (2014) Comments on marine litter in oceans, seas and beaches: characteristics and impacts. *Ann Mar Biol Res* 2(1):1008–1114