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Assessing public perceptions on beach quality according to beach users' profile: A case study in the Costa Brava (Spain)

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ABSTRACT

In recent years, the scope of beach management practices has broadened although a complementary bottom-up perspective that considers beach users' preferences and demands is still missing. Being aware that the translation of beach users' demands into policy recommendations should be made with caution, we propose to examine separately each opinion group and its behaviour by means of a cluster analysis. A case study was carried out at six beaches on the Costa Brava (northeast Spain), a typical Mediterranean area that attracts tourists from other European countries as well as national visitors and residents. Beach users' perceptions were collected by means of a questionnaire randomly applied over two weekends during the peak seasons. A cluster analysis was used to segment the different opinion groups: *satisfied* and *demanding* beach users. The results suggest that loyal and local users are more concerned with natural beach values and environmental degradation. On the other hand, those visitors coming for a short stay are more concerned with the provision of facilities and equipment and do not feel disturbed by overcrowding.

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1. Introduction

Nowadays, beaches represent the main focus of global holiday tourism; they have become an icon of contemporary tourism (Holden, 2000). However, this promising activity for local economies has started to show signs of degrading the environment, which affects both ecological status and the recreational experience of tourists and thereby becomes counterproductive for host communities (Fullana & Ayuso, 2001; Priestley & Mundet, 1998).

Reconciling environmental quality and tourism development has been a target of much of the literature (Holden, 2000). Efforts have been made to improve assessment and management procedures, especially with reference to beach quality, as evidenced by Blue Flag regulations, the ISO 14000 standards, etc. Current beach management tools are based on classifying and rating several basic beach elements. One promising tool that has been poorly addressed in the literature is the collection of information from the public. According to several authors (Cihar & Stankova, 2006; Daily, 1997; Priskin, 2003) public perceptions, needs and preferences with regard to environmental quality should be added to any evaluation in order to produce a better-informed and context-based process. For instance, in the case of tourist beaches, comprehensive and meaningful information on how users perceive beach quality is valuable to coastal managers and can be effectively used to plan environmental management and develop sustainable tourism.

Beach users' relationships with the environment are complex. Recreational behaviour is indirectly affected by environmental quality, via the individual's formulation of perceptions about the environment. Reciprocally, people affect the natural environment through their individual behaviour, which may depend on their perceptions of the environment (Pendleton, Martin, & Webster, 2001). These perceptions can be influenced by sociodemographic factors as well as a variety of other psychological variables, which can be grouped into needs, personal values and personality (Galloway, 2002).

This paper is part of a larger project[3] aimed at developing an integrated approach to the evaluation and management of the quality of the beaches located in popular tourist areas. In a previous phase of this research (Roca & Villares, 2008), we surveyed how

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public perceptions can be affected by the beach environment. We concluded that the conservation of natural features and/or the recreational services offered influences beach users' demands and reasons for choosing a particular beach.

In this paper, we explore beach users' perceptions and attitudes towards beach quality. Specifically, our objective is to identify the sociodemographic determinants that affect beach users' perceptions in order to generate relevant information for coastal managers.

In order to do so, we first identify relatively homogeneous opinion groups within an overall sample of beach users and attempt to describe them in terms of their perceptions towards a set of beach quality indicators (a set of items). We then search for correlations among the identified opinion groups and the sociodemographic profiles of beach users.

This paper will first provide a brief review of the literature. The location where the study was undertaken is then described. After that, the research methods are described and finally the main results and conclusions are given.

2. Background on beach quality evaluation under beach-user perspective

Various authors have identified beach users' perceptions and priorities through questionnaires (Breton, Clapes, Marquès, & Priestley, 1996; Cutter, Nordstrom, & Kuema, 1979; Morgan, 1999; Morgan, Jones, & Williams, 1993; Nordstrom & Mitteager, 2001; Priskin, 2003; Tudor & Williams, 2003; Villares, 1999; Villares et al., 2006; Williams, Gardner, Jones, Morgan, & Ozhan, 1993). However, it is rare to find studies that focus on beach users' diversity and the determining factors that affect them.

Williams et al. (1993) found that, of the many sociodemographic factors that influence people's choice of beach, three were relevant: gender, socio-economic status and planned length of stay. Morgan et al. (1993) suggested that people of high socio-economic status tended to place lower priority on visitor facilities in general but were more critical of deficiencies in facilities such as shortage of toilets.

Wolch and Zhang (2004) provided a broader perspective by developing a conceptual model relating beach use rate to individual characteristics, geographical access, coastal knowledge, interaction with coastal environments and attitudes towards nature. The factors in the model are not completely independent, as demographic factors may shape environmental attitudes and play a role in accessibility. One variable that has not been addressed is how different environmental values or attitudes might influence people's choice of beach recreation. According to Wolch and Zhang (2004), people with an anthropocentric attitude might be expected to make different choices than people with an ecocentric attitude, but research on this subject is lacking. The authors suggested that people with an anthropocentric attitude might favour consumptive recreation (deckchairs, restaurants, etc.) and prefer well-equipped beaches, whereas people with an ecocentric worldview might prefer other activities (biodiversity observation, snorkelling, walking, etc.) and prefer unspoiled beaches.

With a similar perspective, Tunstall and Penning-Rowsell (1998) conducted empirical research on the meanings and values that people attach to beach experiences. Their results showed that people linked beaches to concepts of naturalness and to their earlier personal experiences.

Other important studies have dealt with specific issues. Pendleton et al. (2001) explained how perceptions of environmental quality and pollution-related risk were associated with going to the beach. The authors concluded that information provided about a beach in the media was very important in influencing perceptions of risk. Bonaiuto, Breakwell, and Cano (1996) examined the importance of local and national identity processes in the perception and evaluation of beach pollution. The study found that subjects who were more attached to their town or nation tended to perceive their local and national beaches as less polluted. The authors interpreted these opinions as reactions to physical assessments imposed by external groups that can threaten place identity.

Lastly, the work of Villares (1999) and Villares, Roca, Serra, and Montori (2006) focussed on public perceptions of beach erosion processes. The authors suggested that introducing criteria related to public perception of beach characteristics in coastal protection projects may facilitate consensus and acceptance of final solutions. The methodology applied in Villares (1999) has been adapted for the present study.

3. A case study on the Costa Brava: a typical Mediterranean mass tourist resort

The Costa Brava is a coastal region in northeast Spain where the beaches are a major tourist resource and attraction that has played a key role in the area's social development in recent decades.

The region's unique historical heritage and landscape, so different from that of the rest of the Spanish Mediterranean coastline, has since the 1950s provoked extremely intensive tourism development, which has focussed on the region's 'sun and sand' resources. Costa Brava tourist resorts are illustrative of a typical cycle of resort development identified by Butler (1980), where a destination area is promoted by an elite group, which leads to rapid unplanned tourism growth influenced by the political situation and market forces (Priestley and Mundet, 1998). Under Franco's dictatorship, the tourism industry in Spain was promoted with the aim of gaining political recognition (Holden, 2000). However, not all coastal areas were treated equally. In the case of the Costa Brava, little help was given. The provincial governments, chambers of commerce and private initiatives were relied upon to provide financial aid and investment in public services and infrastructures (Morris, 1996).

Tourism also had an important spin-off effect on other economic sectors. The availability of cheap land in Spain for hotel construction helped increase activity in the hotel and restaurant trades and consequently in the construction industry, which in turn attracted labour inflows from the rest of Catalonia and Spain. This development began to accelerate from 1980 and especially from 1990, at a time when local demand (both Catalan and Spanish) was massively incorporated into the consumer market and the tourist use of the coast, which led to a sharp increase in second-home construction for the region's city dwellers, especially those from Barcelona (Priestley and Mundet, 1998). The magnitude of this process has become a determining factor in the area, as Spanish families are now significantly more likely than other European families to own a second and even a third residence (Antón, 2004).

Seasonality is another characteristic of the tourism model found on the Costa Brava. The region's services (e.g. rubbish collection, transport infrastructures) alternate between periods of saturation and infra-utilisation. One of the chief ironies is that the peak occupancy period falls in the dry season, which increases the pressure on water resources.

The growing pressure brought about by the process of holiday-home development, combined with the area's long tradition of attracting international tourism has, since the 1960s, entailed increasingly intensive social uses of beaches in the area. As a result, a variety of beach users now coexist on these beaches. First, there are the residents, who live there the whole year, pay taxes and vote. Second, there are regional visitors (from Catalonia), a floating and predictable population that stays mainly in second homes in sprawling developments. This type of family and seasonal tourism tends to stay for longer periods (1 month) at the tourist site. Finally, there are foreign tourists, who arrive on organised trips and stay for

Fig. 1. Location and illustration of study beaches.

Table 1
Description and classification of study beaches.

Beach	Municipality	Length (m)	Surface (m^2)	Beach type	Facilities
Malgrat Nord	Malgrat de Mar	1300	42,185	Semi-natural	Non-equipped
S'Abanell	Blanes	2500	69,582	Urban	Full-equipped
Santa Cristina	Lloret de Mar	450	13,431	Semi-natural	Semi-equipped
Lloret	Lloret de Mar	1300	50,220	Urban	Full-equipped
Canyelles	Lloret de Mar	450	9942	Semi-natural	Semi-equipped
Tossa	Tossa de Mar	650	24,115	Urban	Full-equipped

shorter periods in hotels, campsites or rented apartments, in a more intensive occupancy (higher-density buildings). This sort of tourism is more unstable and linked to global geopolitical factors such as international security and the emergence of competing areas.

This study covers six beaches in four coastal municipalities: Malgrat, Blanes, Lloret de Mar and Tossa de Mar (Fig. 1).

Although the sample areas are located very close to each other, they differ significantly in several aspects, such as the size and length of the beach and the level of development (Table 1). Urban beaches, which are located beside existing urban spaces or recently created tourist resorts, are more oriented towards international tourism. The beaches of Lloret and Tossa and the northern part of the S'Abanell beach belong to this category. They typically have high levels of artificiality and their occupancy reaches saturation levels in the peak season. This is a consequence of location, as they are very easily accessed and have a wide range of beach and restaurant facilities.

In contrast, the beaches of Canyelles, Santa Cristina and Malgrat de Mar Nord are better preserved because they are located a certain distance away from the town centre. Despite some disperse urban development at these beaches, natural elements are predominant and the environmental aspects are generally of good quality. There is a greater presence of locals and second-home residents at these beaches.

4. Methodology

Fig. 2 shows the methodological design used to identify beach users' opinion groups and their correlations with the profile variables. The data were collected by means of a quantitative survey. A questionnaire was distributed to the users of six beaches to obtain information about their perceptions of a list of 46 items regarding geomorphological and physical features, environmental quality, aspects related to services and facilities, and landscape and comfort. Furthermore, in order to ascertain their demographic characteristics and the uses they make of the beach, a list of questions designed to define their beach-user profile was also set (see Villares et al., 2006, for a detailed description of the questionnaire).

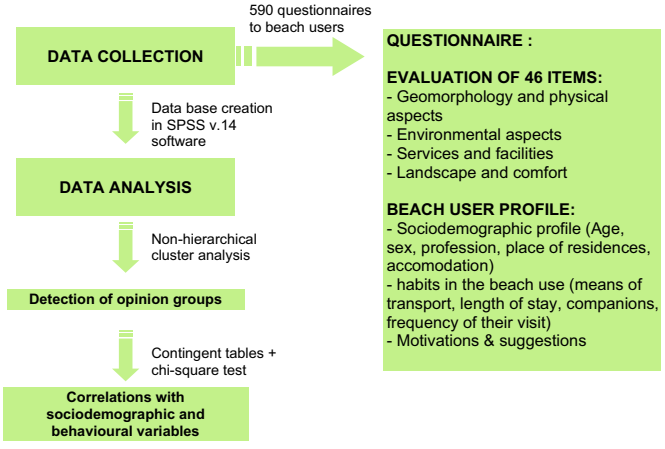

Fig. 2. Diagram of the methodological pathway.

A total of 590 completed questionnaires were collected. The respondents in this sample are representative of the total population of beach users in the peak seasons (summertime) of 2004 and 2005.

In sum, around two-thirds of the sample was made up of young or middle-aged adults, accompanied by their partners and/or other family members, whose main interests were being outdoors and swimming. Over half (57%) of these were local users or visitors from other parts of Catalonia who had either taken up temporary residence on the coast or who had come as day visitors. Many came to the beach on a regular basis—33% daily and 19% every weekend. People from other parts of Spain and Europe (primarily from France, the Netherlands, Britain, Italy and Eastern Europe) accounted for 35% of the visitors. First-time visitors comprised 17%. Over half of the users spent lengthy periods on the beach: 38% remained on the beach for 3–5 h and 15% spent more than 5 h on the beach. Therefore, these holidaymakers clearly spent a significant proportion of their available time on the beach.

Data were analysed in SPSS v.14 software. It was first subjected to descriptive analysis. A multivariate statistical analysis was carried out at a later stage. In order to reduce the number of items in the cluster analysis without losing representation, an a priori attempt to classify them using a principal component analysis was made (Anderson, 2003; Krzanowski, 1990; Peña, 2002). However, it was not possible to reduce the factors to a relatively low number. In the end, the cluster analysis was based on 30 pre-selected key and representative items.

Cluster analysis groups together individuals with similar patterns of scores on variables (Anderson, 2003; Krzanowski, 1990; Peña, 2002). The objective is to group individuals according to their behaviour in a set of variables. Cluster analysis does not determine a cause-and-effect relationship. Instead, it attempts to describe the situation of some individuals within a population in relation to some specific phenomena by classifying them into homogenous groups. The resulting groups should have high intra-group similarity but also relevant inter-group dissimilarity. Therefore, this sort of analysis allows the population, which is defined by certain variables, to be classified into a small number of groups not known a priori.

Basically, there are two clustering techniques: hierarchical and non-hierarchical clusters. A non-hierarchical approach was considered more appropriate for this survey, as it is better suited to bigger data sets and the solution is less influenced by outliers. One of its drawbacks is the need to establish the number of groups a priori. In this case study, several attempts were made, with the number of final groups varying each time.

In general, beach users are normally very happy and satisfied, since they are on holiday or in their leisure time. As a result, most of the items evaluated receive very high scores, which makes it

difficult to consistently differentiate statistically significant opinion groups. Therefore, in order to identify sociodemographic determinants that affect perceptions and offer relevant results for policy makers, we chose a two-cluster solution.

During post-hoc analysis, an ANOVA test detected statistically significant differences in how the members of the different clusters perceived beach quality.

In a further step, descriptive statistics (i.e. contingent tables) of both clusters were obtained to describe the beach-user profiles of the clusters. Correlations among clusters and several variables were tested by means of a χ^2 test.

Two sociodemographic variables (age and origin) and three behavioural variables (company, transport and accommodation) were selected to explore correlations. We also included beach type (urban or semi-natural), the users' reasons for visiting the beach in question, and the users' suggestions.

Next, we present the variables and describe each of their categories.

- Age has three categories: youth (ages 16–30), adults (ages 30–60) and elderly (over age 60).
- The beach user's origin is determined as being the place where he or she mostly resides. Three groups have been identified: locals (from the same municipality or neighbouring municipalities), Catalans (visitors from the same region, arriving mainly from Barcelona although also from other parts of Catalonia), and foreign tourists (visitors arriving from the rest of Spain or from foreign countries).
- Accommodation is divided into three groups: residents (whose main or second residence is in the study area), temporary residents (who are staying in hotels, campsites or rented apartments) and occasional visitors (who only spend the day on the beach).
- Transport: most people go to the beach on foot or by private vehicle. Public transport is another category, which includes cruises (frequently used in the area by foreign tourists to visit more natural beaches).
- Company: most people go to the beach accompanied by somebody (family, partner or friends). Only a few people participate in this recreational and social activity alone.
- The beach where the survey was carried out can also be relevant, although the influence of landscape and site characteristics on perceptions has already been explored (Roca & Villares, 2008).
- Beaches are classified as urban or semi-natural, according to their degree of development and natural conservation. Urban beaches are those directly adjacent to an urban centre, such as at S'Abanell, Lloret and Tossa, and semi-natural beaches are those with relatively well-conserved natural features despite some degree of development, such as at Malgrat, Santa Cristina and Canyelles).
- The reason for choosing a particular beach was investigated through an open question, which received a wide variety of responses. The reasons were grouped as follows: proximity (the beach is close to the accommodation), tranquillity (the beach is quiet), family/friends (the user was invited by or visiting family/friends), landscape (the user was attracted by the landscape and/or local flavour), beach quality (clean water and sand), fidelity (familiarity and tradition), prices, accommodation, weather and the recreation on offer.
- The suggestions for improving the beach included the following categories: facilities, parking and accessibility, life-saving and security, beach morphology, beach planning, seafront and water quality. As it was an open question, the percentage of not answered (N) responses was treated as another category.

5. Results

5.1. Cluster analysis: satisfied versus demanding beach users

A non-hierarchical cluster analysis was performed. Of the various possible solutions, we chose a two-cluster solution: two opinion groups which represent two different forms of evaluating beach quality. For the following analysis, it is important to consider the fact that the respondents were on the beach for recreational purposes. Therefore, their sensation, on average, is generally satisfactory, which explains the high marks obtained for most items (see Fig. 3).

The first group, the *demanding* beach users, shows some sort of dissatisfaction. The scores reflect a relatively low evaluation of the beach. Nearly 50% of the items are around the level of acceptability

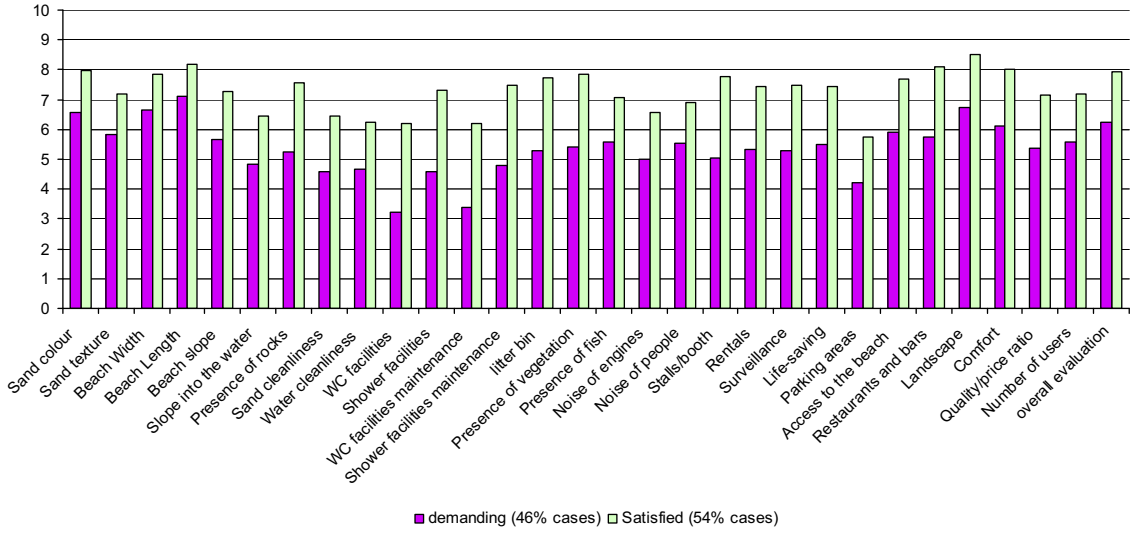

Fig. 3. Scoring of items for each opinion group.

(5). Of the other items, only four (colour, width, length and landscape, i.e. the morphology of the beach) are closer to or above 7. These four items are difficult to modify from a management point of view. The lowest values reflect dissatisfaction with some services and facilities, such as the parking areas, which are normally insufficient at urban beaches or unsatisfactory at semi-natural ones due to their high prices. Furthermore, these users found the toilet facilities to be scarce, not clearly signposted or lacking in maintenance.

Furthermore, in general these users only accepted environmental aspects to a limited degree. First, they perceived the sand and water as dirty, suggesting a lack of or minimal effort put into beach maintenance. Second, they perceived natural elements such as vegetation, algae and fish as scarce or non-existent. Finally, they considered the noise from people and engines annoying. On the other hand, this opinion group clearly manifested satisfaction with beach elements such as dimensions, colours and visual scenery.

The second group, the *satisfied* beach users, expressed a high degree of satisfaction throughout the whole set of items. The scores are above 7 in more than 80% of cases. These beach users are happy and satisfied to be on the beach. The best scores correspond to sets recording general sensations and global characteristics such as landscape, comfort, quality/price and quantity of users. These users also appreciate the physical and morphological characteristics, as well as the facilities and services offered (stalls, bars, restaurants, etc.). Like the other group, these users gave lower scores for aspects related to beach cleaning and toilet facilities. They also saw the parking areas as controversial, since the problem of providing sufficient parking is difficult to solve at such overcrowded beaches.

Comparatively speaking, the two opinion groups are relatively homogeneous in terms of the scores given, although they maintain a certain distance. In general, both are quite positive in their evaluations, only expressing dissatisfaction with beach cleanliness. For environmental items, the two groups' scores differed by two points, while their perceptions of the physical and morphological qualities of the beaches were quite similar. Finally, the two groups were of nearly the same size: 54% were *satisfied* as opposed to 46% *demanding*.

5.2. Social profiles of the cluster

Table 2 shows the sociodemographic characteristics, behavioural variables, motivations and suggestions of the clusters with the results of the χ^2 test. The two opinion groups, *satisfied* and *demanding*, present relatively different social profiles.

The clusters do not differ significantly in beach type, nor in the type of transport used to reach the beach nor in the company kept. Significant differences were observed for the beach users' origin, age, accommodation, motivations, suggestions and beach frequented.

The *demanding* group is made up of two groups of people: those from the same municipality as the beaches, and those from other parts of Catalonia who chose the Costa Brava for their summertime recreation. It is a group with a statistically significant presence of young people and a smaller influence of adults and elderly. Generally speaking, beach-going is a family activity. Most beach users have either their primary or second residence in the area, which means they have a strong attachment to the region. Therefore, the reasons that influence their choice of a beach at a specific village are the proximity of the residence—especially important when considering campsites located just behind the beach—and the level of peace and quiet.

The surveys conducted at Malgrat returned a greater number of *demanding* users than those conducted at the other beaches. The lack of any kind of tourist development or services at the beach entailed unsatisfactory perceptions.

The suggestions provided by this opinion group were along the lines of seeking to correct deficiencies and to improve the services

Table 2
Correlations among social variables and cluster results.

	Demanding	Satisfied
Origin		
Locals	20.2	12.5
Catalans	53.6	43.9
Foreign tourism	26.2	43.6
	$\chi^2 = 18.879$, df = 2, $\rho < 0.001$	
Age		
Youth	44.9	35.1
Adults	52.1	58.1
Elderly	3.0	6.8
	$\chi^2 = 8.484$, df = 2, $\rho = 0.014$	
Transport		
On foot	46.1	44.6
Private transport	50.6	52.2
Public transport	3.3	3.2
	$\chi^2 = 0.165$, df = 2, $\rho = 0.921$	
Beach		
Malgrat de Mar	25.2	9.5
S'Abanell/Blanes	15.3	17.0
Santa Cristina	10.9	22.1
Lloret	19.0	15.1
Cala Canyelles	15.3	18.6
Tossa	14.2	17.7
	$\chi^2 = 35.989$, df = 5, $\rho < 0.001$	
Beach typology		
Urban	51.5	50.2
Semi-urban	48.5	49.8
	$\chi^2 = 0.100$, df = 1, $\rho = 0.752$	
Accompanied by		
Alone	6.7	4.5
With the family	39.4	41.0
With the partner	26.8	30.6
With friends	24.5	20.0
Others	2.6	3.9
	$\chi^2 = 4.119$, df = 4, $\rho = 0.390$	
Accommodation		
Residents	32.1	24.4
Temporary visitors	56.3	58.6
Only spending the day	11.6	16.9
	$\chi^2 = 5.988$, df = 2, $\rho = 0.05$	
Motivation		
Vicinity	29.7	25.2
Tranquillity	10.5	8.1
Family/friends	8.7	5.9
Landscape	23.1	29.6
Beach quality	3.5	4.1
Fidelity	4.8	6.3
Hotel price	1.3	2.2
Accommodation facilities	5.2	0.7
Climate	0.0	0.7
Recreational offer	3.1	3.0
Others	10.0	14.1
	$\chi^2 = 18.426$, df = 10, $\rho = 0.048$	
(Suggestions) Improvement on:		
Facilities	26.5	15.8
Parking and accessibility	7.4	3.9
Life-saving and vigilance	4.4	3.3
Beach morphology	5.1	7.9
Beach planning	18.4	11.8
Maritime seafront	0.0	0.7
Water quality	14.7	15.8
Others	3.7	7.2
N	19.9	33.6
	$\chi^2 = 16.105$, df = 8, $\rho = 0.041$	

and development of the beach, especially the facilities, parking areas and beach planning. What is more, this group was motivated to provide improvement suggestions for the beaches. An open question answered by 80% of the respondents of this cluster implies that they are demanding but at the same time motivated to suggest improvements.

The second cluster consists of *satisfied* users, who are more pleased with their choice and the use of these beaches. This group includes more foreign tourists, adults and elderly people. Although they are mainly temporary residents who stay in hotels, campsites or rental apartments, a significant quantity of one-day beach users is also present in this cluster. In particular, they prefer the beaches at Santa Cristina, Canyelles or Tossa de Mar for their high scenic value. Not in vain, this group's reasons for choosing those villages and their beaches are implicit in their landscape appreciation and the quality of the beach. A third of these respondents did not show any interest in suggesting improvements. Those that did suggested improvements in beach facilities, quality and planning.

6. Discussion

Social diversity suggests that differences between social groups may produce different outdoor recreation and leisure patterns. For example, a study by Wolch and Zhang (2004) suggested that beach use rates vary significantly by age, race/ethnicity, class, immigrant status, distance between home and beach, and recreational activity preference. The study identified certain signals that relate beach users' profiles and their perceptions.

We have separately examined two opinion groups through a cluster analysis in order to find out what sociodemographic and behavioural determining factors influence beach users' perceptions. Our results show that there are statistically significant differences in perception between residents and foreign visitors. In particular, local residents and Catalan users are more concerned with natural beach values and environmental degradation and are more demanding about facilities and equipment. Foreign visitors coming for a short stay, however, are satisfied with all items and do not feel disturbed by overcrowding. We relate this finding to the different degrees of fidelity and knowledge according to beach users' origin. The study area attracts local users who live their day-to-day lives in the village and are very familiar with the changes in beach use throughout the year, second-home residents who visit the beach year by year, and tourists who come for first time or occasionally. Locals and Catalan visitors are therefore able to compare the peak period with the rest of the year and are more likely to notice changes in the beaches over time. Criticism and requests from groups that live nearby or that traditionally spend their holidays in the area can be interpreted as a manifestation of their attachment to those beaches and villages, whereas foreign groups can be perceived as a threat to the place's identity.

This concurs with some studies on the relationship between beach users' perceptions and socio-economic profiles. According to Tunstall and Penning-Rowsell (1998), local residents may have special knowledge of local seaside conditions, tides, currents and pollution sources. Residents' negative perception of environmental aspects may be due to everyday life in the area, which makes them more aware of impacts during the summertime. Local people are also less tolerant of litter, probably due to their understanding of its origins (visitors, tourism invasion, etc.). Cihar and Stankova (2006) argued that locals have such a strong relationship with the territory that they perceive the level of tourism as an increasingly disturbing factor. This interpretation concurs with the large body of literature on residents' negative perceptions of tourism (Aguiló & Rosselló, 2005; Bujosa & Roselló, 2007; Carmichael, 2000; Fredline & Faulkner, 2000; Williams & Lawson, 2001).

We think that beach users' opinions and requirements of recreational areas should be used to assess and guide beach management strategies. In doing so, the variability in beach users' perceptions and demands—which has been shown to be partly linked to sociodemographic factors—should be taken into account. In particular, findings of this sort can help to recognise or confirm shortcomings in the management model and to identify new improvements that can be made to beach planning (e.g. maintaining or eliminating certain beach uses). Moreover, in order to promote environmental attitudes, information on beach users' perceptions can be used to develop awareness campaigns, to improve information policies, and to enhance certain unknown elements (e.g. the natural or cultural values of a beach).

7. Conclusions

Beaches are the icon of mass tourism in most of the Mediterranean basin, and strategies for managing them therefore require great effort and accuracy. In recent years, the scope of beach management practices has broadened and a wide range of parameters (e.g. water quality, safety, public education, geomorphology and facilities) have been integrated in the processes for assessing these practices. However, if the specific characteristics of each beach are not taken into account—not only in terms of natural diversity but also social uses and users—there is a risk that the models applied may become homogeneous.

Our approach offers a complementary bottom-up perspective that considers beach users' preferences and demands to help fit beach management to the local context.

This paper has explored beach users' perceptions and attitudes towards beach quality in order to contribute to developing a more holistic approach to beach evaluation procedures. In particular, emphasis has been put on examining separately the opinion groups obtained through a cluster analysis in order to find out which sociodemographic and behavioural determining factors influence beach users' perceptions.

This study has shown that there are differences in perception among residents and visitors. The results suggest that local residents and Catalan users are more concerned with natural beach values and environmental degradation and are more demanding about facilities and equipment. Foreign visitors coming for a short stay, however, are satisfied with all items and do not feel disturbed by overcrowding.

This study has shown that perceptions vary by beach-user profile, which can affect the formulation of new beach management strategies. The aim is not to create beaches on demand, but to use beach users' information to improve beach plans, to help coastal managers identify high-priority issues, and to ensure the loyalty of desired beach users.

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Appendix

STUDY ON SOCIAL PERCEPTION OF TOSSA DE MAR, LLORET DE MAR, BLANES AND MALGRAT DE MAR BEACHES. "*MEVAPLAYA PROJECT*"

INTERVIEWS WITH BEACH USERS

From the Technical University of Catalonia (UPC), we are carrying out a study on social perception in order to know the opinion and the valuation of this beach. We would appreciate if you could value the beach to help us establishing criteria for improving or correcting the situation in order to optimise its management.

We would ask you to evaluate different physical characteristics, environmental aspects and the services of the beaches. It is a matter of marking from 1 to 10. When answering please remember that 10 means maximum punctuation, what you value positively, and 1 means negatives punctuation, what you don't like. In case any aspect is not present, please mark "not present".

PHYSICAL AND MORPHOLOGICAL ASPECTS

Physical aspect and shape of the beach can change due to the effects of the storms, which limits sand extension. In order to evaluate the current situation of this beach, please, punctuate the following aspects:

The colour of the sand	1	2	3	4	5	6	7	8	9	10	Not present
The texture of the sand	1	2	3	4	5	6	7	8	9	10	Not present
Water temperature	1	2	3	4	5	6	7	8	9	10	Not present
beach Width	1	2	3	4	5	6	7	8	9	10	Not present
beach length	1	2	3	4	5	6	7	8	9	10	Not present
Slope of the beach	1	2	3	4	5	6	7	8	9	10	Not present
Slope into the water	1	2	3	4	5	6	7	8	9	10	Not present
Waves	1	2	3	4	5	6	7	8	9	10	Not present
Sand temperature	1	2	3	4	5	6	7	8	9	10	Not present
Wind	1	2	3	4	5	6	7	8	9	10	Not present
The presence of rocks	1	2	3	4	5	6	7	8	9	10	Not present
The presence of cliffs	1	2	3	4	5	6	7	8	9	10	Not present

ENVIRONMENTAL ASPECTS

Under this heading we would like you to evaluate the environmental quality of the water and the sand, and also the quality of the environment and the facilities. Please we ask you to punctuate such quality through the visible aspects as, for example, what you can see, smell, feel, perceive, etc.

Please remember that the minimum value is 1 and would represent a very serious environmental problem, whereas an optimum environment would be valued at 10.

Waste matter on the sand	1	2	3	4	5	6	7	8	9	10	Not present
Waste matter in the water	1	2	3	4	5	6	7	8	9	10	Not present
Toilet facilities	1	2	3	4	5	6	7	8	9	10	Not present
Shower facilities	1	2	3	4	5	6	7	8	9	10	Not present
Toilet maintenance	1	2	3	4	5	6	7	8	9	10	Not present
Shower maintenance	1	2	3	4	5	6	7	8	9	10	Not present
Installation of waste-baskets	1	2	3	4	5	6	7	8	9	10	Not present
Rain water run-offs	1	2	3	4	5	6	7	8	9	10	Not present
Presence of vegetation	1	2	3	4	5	6	7	8	9	10	Not present
Presence of fish	1	2	3	4	5	6	7	8	9	10	Not present
Presence of alive seaweed	1	2	3	4	5	6	7	8	9	10	Not present
Presence of dead seaweed	1	2	3	4	5	6	7	8	9	10	Not present
Presence of oil on the water	1	2	3	4	5	6	7	8	9	10	Not present
Presence of oil on the sand	1	2	3	4	5	6	7	8	9	10	Not present
Noise of engines	1	2	3	4	5	6	7	8	9	10	Not present
Noise of people	1	2	3	4	5	6	7	8	9	10	Not present
Presence of dogs	1	2	3	4	5	6	7	8	9	10	Not present

ASPECTS RELATED TO FACILITIES AND SERVICES

We would like you to punctuate the characteristics in the use and presence of facilities and services meant for the comfort and enjoyment of your stay on the beach. Please value from 1 to 10 the following aspects:

Stalls/booth	1	2	3	4	5	6	7	8	9	10	Not present
Rentals of deckchairs/sunshades	1	2	3	4	5	6	7	8	9	10	Not present
Surveillance	1	2	3	4	5	6	7	8	9	10	Not present
Life-saving	1	2	3	4	5	6	7	8	9	10	Not present
Walkway on the sand	1	2	3	4	5	6	7	8	9	10	Not present
Play/sport areas on the beach.	1	2	3	4	5	6	7	8	9	10	Not present
Areas for water activities	1	2	3	4	5	6	7	8	9	10	Not present
Rentals of jet skies, windsurf	1	2	3	4	5	6	7	8	9	10	Not present
Parking areas	1	2	3	4	5	6	7	8	9	10	Not present
Access to the beach	1	2	3	4	5	6	7	8	9	10	Not present
The waterfront/boulevard	1	2	3	4	5	6	7	8	9	10	Not present
Restaurants & bars	1	2	3	4	5	6	7	8	9	10	Not present

ASPECTS RELATED TO BEACH DESIGN, COMFORT AND GLOBAL VALUATION

This beach, that you have chosen to spend the day, has a determined landscape linked to its tourist development. How would you evaluate the following aspects? We also ask you to evaluate the beach on the whole thinking in terms of the aspects detailed above.

The landscape	1	2	3	4	5	6	7	8	9	10	Not present
The comfort of the beach	1	2	3	4	5	6	7	8	9	10	Not present
Quality/price ratio	1	2	3	4	5	6	7	8	9	10	Not present
The number of users	1	2	3	4	5	6	7	8	9	10	Not present

Global evaluation	1	2	3	4	5	6	7	8	9	10	Not present

Final suggestions: What do you think would improve this beach and its environment?

IN GENERAL, when you chose a beach (ANY BEACH), how important are the following aspects for you? 10 is the maximum importance and 1 the minimum.

Good facilities		Comfort and safety for bathing and swimming	
Clean water and sand		Good access and parking areas	
Attractive views and landscapes		Tranquility	

CLASSIFICATION DATA

Data:	**Time:**	**Normal place of residence (country)**
Age:	**Sex:**	**Profession:**

From which village/town have you arrived to the beach?
Why have you chosen this beach?

By which transport have you arrived to the beach today? (Mark only one box)

By foot		By bicycle		By car	
By urban bus		By train		By own boat	
By cruise		Others			

With whom have you come to the beach? (Mark only one box)

Alone		With the partner		With the family	
With a group of friends		Others			

How long (in hours) do you plan to stay on the beach? (Mark only one box)

Less than 1h		Between 1 and 3h		Between 3 and 5h		More than 5h	

Where are you staying here?

Home (habitual residence)		Apartment		Swimming pool	yes / no
Home (holiday home)		Semi-detached house		With sea views	yes / no
Rented for the holiday		Detached house			
Home of friends/family					

Hotel / Hostel / Pension		Accommodation conditions	B&B	Half board	Full board
Camping					
Only spending the day					
On a yacht					
Others					

Please, indicate the name of the hotel or camping. In case you are in a house/apartment indicate the urbanization or the street.

How much do you spend per day in the beach? (€/pers) Please, consider restaurant, leisure, supermarket, beach services… (Mark only one box)

Less than 10 €		Between 11and 20 €		Between 21 and 40 €	
Between 41and 60 €		More than 60€			

How often do you come to this particular beach? (Mark only one box)

In summer:

Every day		Weekends		More than once a week	
More than once a month		Less than once a month		This is the first time	

Rest of the year:

Every day		Weekends		More than once a week	
More than once a month		Less than once a month		This is the first time	

Why are you on this beach today? (Mark only one box)

To swim and sunbathe		Enjoy the landscape and nature		Practice beach sports	
To walk and stroll		To play with the children		Practice water sports	

¿Where have you heard about this beach? (Mark only one box)

Travel agency		At the hotel, camping, etc		Information office	
Tourist guide		By recommendation		Others	

References

Aguiló, E., & Rosselló, J. (2005). Host community perceptions. A cluster analysis. *Annals of Tourism Research, 32*(4), 925–941.

Anderson, T. W. (2003). *An introduction to multivariate statistical analysis* (2nd ed.). Wiley.

Antón, S. (2004). De los procesos de diversificación y cualificación a los productos turísticos emergentes. Cambios y oportunidades en la dinámica reciente del turismo litoral. *Papeles de Economía Española, 102*, 316–333.

Bonaiuto, M., Breakwell, G. M., & Cano, I. (1996). Identity processes and environmental threat: the effects of nationalism and local identity upon perception of beach pollution. *Journal of Community & Applied Social Psychology, 6*, 157–175.

Breton, F., Clapes, J., Marquès, A., & Priestley, G. K. (1996). The recreational use of beaches and consequences for the development of new trends in management: the case of the beaches of the Metropolitan Region of Barcelona (Catalonia, Spain). *Ocean & Coastal Management, 32*, 153–180.

Bujosa, A., & Roselló, J. (2007). Modelling environmental attitudes toward tourism. *Tourism Management, 28*, 688–695.

Butler, R. W. (1980). The concept of tourist area cycle of evolution and implications for management. *The Canadian Geographer, 24*, 5–112.

Carmichael, B. A. (2000). A matrix model for resident attitudes and behaviours in a rapidly changing tourist area. *Tourism Management, 21*, 601–611.

Cihar, M., & Stankova, J. (2006). Attitudes of stakeholders towards the Podyji/Thaya River Basin National Park in the Czech Republic. *Journal of Environmental Management, 81*, 273–285.

Cutter, S. L., Nordstrom, K. F., & Kuema, G. A. (1979). Social and environmental factors influencing beach site selection. In *Proceedings of the fifth annual conference on resource allocation in issues in the coastal environment* (pp. 183–194). The Coastal Society.

Daily, G. C. (Ed.). (1997). *Nature's services: Societal dependence on natural ecosystems*. Washington: Island Press.

Fredline, E., & Faulkner, B. (2000). Host community reactions. A cluster analysis. *Annals of Tourism Research, 27*, 763–784.

Fullana, P., & Ayuso, S. (2001). *Turisme sostenible*. Barcelona: Rubes, Departament de Medi Ambient.

Galloway, G. (2002). Psychographic segmentation of park visitor markets: evidence for the utility of sensation seeking. *Tourism Management, 23*, 581–596.

Holden, A. (2000). *Environment and tourism*. London: Routledge.

Krzanowski, W. J. (1990). *Principles of multivariate analysis*. Clarendon Press.

Morgan, R. (1999). Preferences and priorities of recreational beach users in Wales, UK. *Journal of Coastal Research, 15*, 653–667.

Morgan, R., Jones, T. C., & Williams, A. T. (1993). Opinions and perceptions of England and Wales Heritage Coast beach users: some management implications from the Glamorgan Heritage Coast, Wales. *Journal of Coastal Research, 9*, 1083–1093.

Morris, A. (1996). Tourism and local awareness: Costa Brava, Spain. In G. K. Priestley, J. A. Edwards, & H. Coccossis (Eds.), *Sustainable tourism? European experiences* (pp. 70–85). CAB International.

Nordstrom, K. F., & Mitteager, W. A. (2001). Perceptions of the value of natural and restored beach and dune characteristics by high school students in New Jersey, USA. *Ocean & Coastal Management, 44*, 545–559.

Peña, D. (2002). *Análisis de datos multivariante*. McGraw-Hill.

Pendleton, L., Martin, N., & Webster, D. G. (2001). Public perceptions of environmental quality: a survey study of beach use and perceptions in Los Angeles County. *Marine Pollution Bulletin, 42*, 1155–1160.

Priestley, G., & Mundet, L. (1998). The post-stagnation phase of the resort cycle. *Annals of Tourism Research, 25*(1), 85–111.

Priskin, J. (2003). Tourist perceptions of degradation caused by coastal nature-based recreation. *Environmental Management, 32*, 189–204.

Roca, E., & Villares, M. (2008). Public perception for evaluating beach quality in urban and semi-natural environments. *Ocean & Coastal Management, 51*, 314–329.

Tudor, D. T., & Williams, A. T. (2003). Public perception and opinion of visible beach aesthetic pollution: the utilisation of photography. *Journal of Coastal Research, 19*, 1104–1115.

Tunstall, S. M., & Penning-Rowsell, E. C. (1998). The English beach: experiences and values. *The Geographical Journal, 164*(3), 319–332.

Villares, M. (1999). *Percepció dels impactes estètics i mediambientals de la regeneració de platges*. Ediciones UPC. (Forum Virtual collection, Barcelona, 2000).

Villares, M., Roca, E., Serra, J., & Montori, C. (2006). Social perception as a tool for beach planning: a case study on the Catalan coast. *Journal of Coastal Research, 48*, 118–123, (SI).

Williams, A. T., Gardner, W., Jones, T. C., Morgan, R., & Ozhan, E. (1993). A psychological approach to attitudes and perceptions of beach users: implications for coastal zone management. In *The first international conference on the Mediterranean coastal environment, MEDCOAST'93, Antalya, Turkey* (pp. 217–228).

Williams, J., & Lawson, R. (2001). Community issues and resident opinions of tourism. *Annals of Tourism Research, 28*(2), 269–290.

Wolch, J., & Zhang, J. (2004). Beach recreation, cultural diversity and attitudes toward nature. *Journal of Leisure Research, 36*(3), 414–443.