

# Estudios Sociales

Revista de Alimentación Contemporánea y Desarrollo Regional

Volumen 32, Número 60. Julio – Diciembre 2022

Revista Electrónica. ISSN: 2395-9169



Sustainability assessment based on stakeholders' perception of tourism activities in Loreto Bay National Park, Mexico

Evaluación de la sustentabilidad basada en la percepción de las partes interesadas sobre las actividades turísticas en el Parque Nacional Bahía de Loreto, México

DOI: <https://doi.org/10.24836/es.v32i60.1265e221265>

Iris del Castillo Velasco-Martínez\*

<https://orcid.org/0000-0001-8883-3098>

Luis Felipe Beltrán-Morales\*\*

<https://orcid.org/0000-0002-6594-2889>

Alfredo Ortega-Rubio\*\*

<https://orcid.org/0000-0002-6365-287X>

Gerzaín Avilés-Polanco\*\*

<https://orcid.org/0000-0001-9896-8332>

Gustavo Arnaud-Franco\*\*

<https://orcid.org/0000-0002-5317-2303>

Ángel Herrera-Ulloa\*\*\*

<https://orcid.org/0000-0003-2375-2945>

Fecha de recepción: 20 de junio de 2022.

Fecha de envío a evaluación: 25 de agosto de 2022.

Fecha de aceptación: 12 de septiembre de 2022.

\*Comisión Natural de Áreas Naturales Protegidas, Parque Nacional Bahía de Loreto-The Ocean Foundation

\*\*Centro de Investigaciones Biológicas del Noroeste

\*\*\*Universidad Nacional de Costa Rica

Autor para correspondencia: Luis Felipe Beltrán-Morales. Centro de Investigaciones Biológicas del Noroeste. Programa de Planeación Ambiental y Conservación. Instituto Politécnico Nacional s/n, Playa Palo de Santa Rita Sur, 23096 La Paz, B. C. S. México. Teléfono: 612 122 6881. Extensión: 3429. Dirección electrónica: [lbeltran04@cibnor.mx](mailto:lbeltran04@cibnor.mx)

Centro de Investigación en Alimentación y Desarrollo, A. C.  
Hermosillo, Sonora, México.



## Resumen / Abstract

**Objective:** To assess the level of sustainability, based on stakeholders' tourism perceptions of Loreto Bay National Park (LBNP) in Mexico. **Methodology:** Indicators were selected and organized in three components: (1) destination management; (2) social, economic, and cultural impact; (3) environmental impact; and two dimensions: social and environmental. Surveys were applied to tourist companies, residents, and visitors. Contingency tables were used to identify significant dependence between indicators. **Results:** The results showed an acceptable sustainability level. Indicators with lower value were residents' knowledge about PA, the benefit they obtain from tourism, as well as their participation in environmental activities. **Limitations:** Some of the indicators used are specific to LBNP, therefore they should be adequate for each PA. **Conclusions:** The study concludes with the contributions of the method and a series of recommendations to increase residents' economic benefit and their involvement in PA management.

**Objetivo:** Valorar el nivel de sustentabilidad, con base en las percepciones turísticas de las partes interesadas del Parque Nacional Bahía de Loreto (PNLB) en México. **Metodología:** Se seleccionaron indicadores y se organizaron en tres componentes: (1) gestión de destinos; (2) impacto social, económico y cultural; (3) impacto ambiental; y dos dimensiones: social y ambiental. Se aplicaron encuestas a empresas turísticas, residentes y visitantes. Se utilizaron tablas de contingencia para identificar la dependencia significativa entre indicadores. **Resultados:** Un nivel de sustentabilidad aceptable. Los indicadores con menor valor fueron el conocimiento de los residentes sobre las AP, el beneficio que obtienen del turismo, así como su participación en actividades ambientales. **Limitaciones:** Algunos de los indicadores empleados son específicos para el PNBL, por lo que deben adecuarse a cada AP. **Conclusiones:** Las aportaciones del método y una serie de recomendaciones para incrementar el beneficio económico de los residentes y su participación en la gestión de las AP.

**Palabras clave:** regional development; indicator; national park; perception; protected area; stakeholders; sustainability; tourism.

**Key words:** desarrollo regional; indicador; parque nacional; percepción; área protegida; stakeholders; sustentabilidad; turismo.

## Introduction

**P**rotected Areas (PA) play a key role not only in biodiversity conservation, but also in adaptation and mitigation of climate change, as well in contributing to local and national economies through tourism (Watson et al. 2014). PA are recognized as the ideal sites for nature-based tourism or ecotourism, whose demand has increased (Eagles et al. 2002; Dinica 2018). According to Balmford et al. (2015), the majority of the world's terrestrial PA collectively receive eight billion visitors per year. Tourism in PA generates both benefits and costs (Lankford and Howard 1994; Eagles, McCool, and Haynes 2002; Leung et al. 2018), which may contribute to the protection of natural and cultural heritage, as well as provide economic benefits and a better quality of life to residents (Eagles, McCool, and Haynes 2002; Xu et al. 2009; Anup, Kedar, and Ramesh 2015). However, tourism in PA also generates potential environmental impacts that threaten biodiversity, such as habitat fragmentation and loss, pollution, change in land use, overexploitation of resources and disturbance in wildlife behavior (Dowling 1993; Farrell and Marion 2001; Li, Ge, and Liu 2005; Pickering 2010; Ruschkowski et al. 2013; Oldekop et al. 2016). A sustainable tourism should benefit mutually local communities and environment conservation (UNEP (United Nations Environment Programme) & WTO (World Tourism Organization) 2005); and therefore it should maximize benefits and decrease costs in PA (Eagles, McCool, and Haynes 2002; Leung et al. 2018).

One of the aims of sustainable tourism is to provide socio-economic benefits to stakeholders, who are all those individuals that may be affected or could influence the actions and decisions made regarding tourism management (WTO 2004; Weaver 2006; Waligo et al. 2013). According to the literature, several types of stakeholders have been distinguished: tourists, tourism companies, local community, authorities or PA personnel, government agencies, educational and research institutions, as well as interested civil associations (Eagles, McCool, and Haynes 2002; Timur and Getz 2008; Waligo, Clarke, and Hawkins 2013; Mannetti et al. 2019).

Stakeholders depend on ecosystem services provided by the PA; however, the conservation activities often cause trade-offs, which leads to conflicts when the interests and goals of some stakeholders groups confront (Kovács et al. 2015). Usually these conflicts refer to land use, which also may include biodiversity and conservation issues (White et al. 2009; Redpath et al. 2013). Tourism in PA can benefit stakeholders through empowerment or direct incentives, which can motivate building positive attitudes towards the environment (Nyaupane & Poudel 2011; Arnberger et al. 2012). Stakeholders' perceptions and attitudes towards PA are related with their willingness to participate in the management and conservation issues (Sirivongs & Tsuchiya 2012). The community-based management of PA, which is based on the involvement of local people, has shown to improve livelihood of residents and to encourage positive attitudes towards the PA conservation (Mehta & Heinen 2001; Chen et al. 2012; Zhang et al. 2020). To achieve effective management and long-term viability of tourism in PA, stakeholder participation should be incorporated throughout the decision-making process (Eagles et al. 2002; Lockwood 2010; Jones et al. 2017; Mannetti et al. 2019).

Therefore, it is crucial to study stakeholders' perceptions, attitudes, and participation, as well as identify the factors that influence in these. Several studies worldwide have reported that stakeholders' support depends on considering their perceptions and attitudes (Eagles, McCool, and Haynes 2002; Choi and Murray 2010; Mannetti et al. 2019). Nevertheless most of these studies focus on assessing a single group, mainly residents (Allendorf, Smith, and Anderson 2007; Sirivongs and Tsuchiya 2012; Oldekop et al. 2016; Alrwajfah, Almeida-García, and Cortés-Macías 2019; Allendorf 2020; Abukari and Mwalyosi 2020; Mitsui, Kubo, and Shoji 2020; Zhang et al. 2020), tourists (Smith et al. 2014; Rodger, Taplin, and Moore 2015; Backman et al. 2018; Schirpke et al. 2018; Tverijonaite, Ólafsdóttir,

and Thorsteinsson 2018; Oviedo-García et al. 2019; Pearce and Dowling 2019; Sangpikul 2020; Rice et al. 2020), or tourist companies (Haukeland 2011; Khairatp and Maher 2012; Gopal 2014; Xin and Chan 2014; Byrnes et al. 2016; Font, Garay, and Jones 2016; McNicol and Rettie 2018).

To consider equitable tourism costs and benefits, the interests and opinions of all the actors that may be affected should be assessed. In some of the publications that included more than one group of stakeholders, their perceptions about tourism impacts in PA were assessed and compared (Tsaour, Lin, and Lin 2006; Puhakka et al. 2009; Imran, Alam, and Beaumont 2014; Poudel, Nyaupane, and Budruk 2014; Anup, Kedar, and Ramesh 2015; Hatipoglu, Alvarez, and Ertuna 2016), as well as their opinions about management issues (Heck et al. 2011; Bonilla-Moheno and García-Frapolli 2012; Al-Tokhais and Thapa 2019), and governance models (Eagles et al. 2013).

Tourism studies in PA in Mexico where the perception of various groups of stakeholders has been assessed are scarce. Among those, Bonilla-Moheno and García-Frapolli (2012) considered the expectations and opinions of residents, scientists, government agencies, civil organizations and tourism companies, regarding the goals of a PA in Yucatan. From the state of Baja California Sur (BCS), López-Espinosa de los Monteros (2002) examined the degree of participation of tour operators regarding management and conservation objectives in PA of La Paz Bay in BCS. Likewise, Ibáñez-Pérez (2015) developed a model to analyze tourism sustainability in Cabo Pulmo, BCS, based on the perception of the local community and tourists.

The aim of this study was to design and apply a system of subjective indicators organized in two dimensions - social and environmental -to assess the level of sustainability of tourism in Loreto Bay National Park (LBNP) in BCS, Mexico. The information of the indicators was based on perceptions, motivations, attitudes, as well as the level of knowledge and satisfaction of three groups of stakeholders- tourist companies that offer tourist tours, residents, and visitors. All of them influence or are affected by LBNP tourism, so assessing their opinions is essential to achieve sustainable tourism development.

## Methods

### *Study area*

LBNP is in the municipality of Loreto in the State of Baja California Sur, Mexico off the coast in the Gulf of California. The area is 206 580.75 ha in size and encompasses the Coronados, del Carmen, Danzante, Montserrat, and Santa Catalina islands, in addition to 12 islets. The populations that inhabit the localities around influence -Loreto, San Cosme, Ensenada Blanca, Ligüí, Nopoló, and Agua Verde- depend mainly on the natural resources of PA (Figure 1).

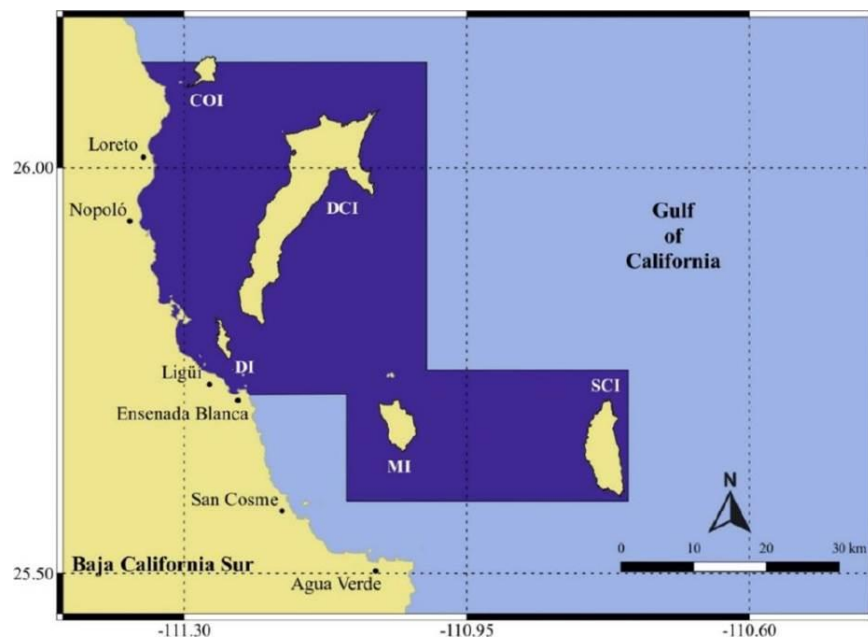


Figure 1. Location of Loreto Bay National Park and its areas of influence in Loreto Municipality, Baja California Sur, Mexico. Abbreviations correspond to the names of the islands: (COI) Coronados Island; (DCI) Del Carmen Island; (DI) Danzante Island; (MI) Montserrat Island; (SCI) Santa Catalina Island.

Source: Own production based on Conanp (2002).

The population in Loreto was 18 912 inhabitants in 2015 (GBCS, Gobierno de Baja California Sur, 2018), whose economy depends on multiples sectors including agricultural, livestock, fisheries and mainly tourism (Hernández-Trejo et al. 2009; GBCS 2018). Hotels and restaurants are the main source of employment, while commerce is the activity that generates the most economic gains (GBCS 2018). Loreto experienced an increase in tourist influx in 2016 and 2017 and has become an important tourist destination worldwide (INEGI 2016; INEGI 2017).

LBNP is known for its diverse habitats with high biodiversity and endemism, which makes it one of the main tourist attractions in the region (Conanp, 2021). The LBNP Management Program has been updated, establishing its zoning and regulation of tourism activities. However, tourism in LBNP may cause environmental damage, such as pollution and modification of the natural landscape and behavior of some species (Conanp, 2021). Additionally, it may also generate socioeconomic and cultural costs to residents (Mendoza-Ontiveros and González Sosa 2014).

### *Selection of dimensions, components, subcomponents, and indicators*

Indicators were selected to measure perception, attitudes, and participation of stakeholders. Selecting the indicators and their organization was performed through a literature review (López-Espinosa de los Monteros 2002; Tsaur, Lin, and Lin 2006; Choi and Sirakaya 2006; Xin and Chan 2014; Ashok et al. 2017), as well as in accordance with the objectives of sustainable tourism: (1) provide economic benefit to the local community; (2) preserve the culture of the host communities; (3) achieve a high degree of tourist satisfaction; and (4) educate tourists about the importance of conserving natural resources (OMT, Organización Mundial del Turismo, 2005). The objectives of LBNP Management Program were also considered to: (1) guide the sustainable use of natural resources; (2) promote knowledge of the area; (3) promote the development of environmental education programs; and (4) strengthen compliance with standards (Conanp, 2002).

For assessing sustainability, three components were selected: (1) destination management; (2) social, economic and cultural impact; (3) environmental impact. Within each component, a series of subcomponents related to the selected

indicators were included. Additionally, the three components were organized at the same time in two dimensions - social and environmental. The social dimension consisted of the first two components. The environmental dimension included indicators that explain the strategies used during tourism activities and participation of the community in practices that reduce impact on the environment.

### *Collection of indicator information*

The indicator information was obtained by conducting surveys with the residents, tour operator companies, and visitors. The surveys were carried out in the locality of Loreto, where 88% of its population inhabits (GBCS, 2018), most of the hotels and tour operators are located in that area, which is the starting point for most of the tourism tours. Since the number of tour operators in Loreto was limited (only 11), the survey was applied to all of them. The sample size of the community and visitors were estimated by stratified sampling, in which the organizational factor was the length of stay in Loreto.

The community was considered as resident population and visitors as floating population. The number of sample units of each stratum ( $n_h$ ) was set according to the sample size of the total population ( $n = 383$ ) and its weighting coefficient ( $W_h$ ) (Equation 1); the latter consisted of the population proportion of each stratum to the total population (Pérez-López 2005). A total of 100 surveys were applied to the community and 240 to the visitors, during three seasons of 2018-2019: winter (January-February), spring (March-April) and summer (June-July).

$$n_h = W_h * n \quad (1)$$

### *Integration and analysis of information*

Indicators were measured by a 5-point Likert scale (1 = very bad, nothing or never; 2 = bad, low or very rare; 3 = regular; 4 = good, adequate or frequent; 5 = excellent, regularly or always), which were averaged to obtain the value of each component.





The dimensions values were calculated using the arithmetic average of the components.

The degree of sustainability was established according to a modification of the Barometer of Sustainability proposed by Prescott-Allen (1997). This method considers the well-being of people and the ecosystems, so it is based on the two dimensions - social and environmental. Four levels derived according to the values obtained: (a) good (sustainable) 4.1 - 5; (b) acceptable (almost sustainable) 3.1 - 4; (c) medium (almost unsustainable) 2.1 - 3; (d) poor (unsustainable) 1.1 - 2. The visual comparison of sustainable performance of the environmental and social dimensions was made by locating the values in the Barometer of Sustainability.

Contingency tables were built using cross-tabulation (CROSSTABS) command in the statistical package for the social sciences (SPSS) (Garrido-Luque and Alvarado-Estramiana 1995). These tables allow testing the independence between the frequencies of the observations of two or more categorical variables (Zar 1996). In this study, contingency tables were used to analyze the relationship between different variables, such as knowledge of LBNP, origin and occupation of tourists, place of birth and section of resident population, as well as percentage of the population that works within the tourism sector. The Chi-square formula (Equation 2) was used to statistically analyze the independence or degree of association between the variables (Zar 1996).

$$X^2 = \sum \sum \frac{(f_{ij} - \hat{f}_{ij})^2}{\hat{f}_{ij}} \quad (2)$$

## Results

The average of the indicators corresponding to destination management was classified as acceptable (Table 1). Within this component, the indicators that showed the lowest values (less than three) were those related to residents' knowledge of the LBNP Management Program. The subcomponent that showed a higher value was the aptitude of the tourist service.

Table 1.  
*Indicator values and categorization corresponding to the destination management component of the social dimension in Loreto Bay National Park, Baja California Sur, Mexico from surveys applied during winter (January-February), spring (March-April) and summer (June-July) 2018-2019.*

Subcomponents	Indicators	Value	Categorization	
Knowledge and monitoring of the management program	Knowledge of tourism companies about the LBNP Management Program			
	Knowledge of the resident population about the extent of LBNP	4.5	Good	
	Knowledge of the resident population about LBNP flora and fauna	2.8	Medium	
	Knowledge of the resident population about LBNP guidelines	3.1	Acceptable	
	Knowledge of the resident population about LBNP guidelines	2.8	Medium	
Average Communication about sustainable tourism	Importance assigned by companies to conservation announcements on their websites	3.3	Acceptable	
	Importance assigned to environmental education talks during tourist tours	2.7	Medium	
	Importance assigned to environmental education talks during tourist tours	4.9	Good	
Average Tourism participation of tourism companies in environmental and conservation programs	Degree of participation with authorities or institutions in Environmental and / or research programs.	3.8	Acceptable	
	Degree of participation with authorities or institutions in Environmental and / or research programs.	4.1	Good	
	Willingness to continue or start participation	4.3	Good	
Average Tourist service aptitude	Transport quality to reach the destination	4.2	Good	
	Hosting quality	4.1	Good	
	Food and drink consumption	4.5	Good	
	Quality of tourist service	4.4	Good	
	Boat safety	4.6	Good	
	Attention of tourist service staff	4.5	Good	
	Quality of local transport	4.7	Good	
	Quality and price ratio	4.0	Good	
	Security perception	4.1	Good	
	Satisfaction of the visit	4.8	Good	
	Satisfaction of the visit	4.8	Good	
	Average		4.4	Good
	Component average		3.9	Acceptable

Source: own elaboration.

The component represented by social, economic, and cultural impact indicators was also categorized as acceptable (Table 2). The indicators that showed lower values were related to the degree of benefit that tourism provides to residents while the highest values were obtained with the indicators of quality of life and socioeconomic level of the residents, as well as preservation of local identity.

Table 2.

*Indicator values and categorization corresponding to social, economic, and cultural impact components of the social dimension in Loreto Bay National Park, Baja California Sur, Mexico from surveys applied during winter (January-February), spring (March-April) and summer (June-July) 2018-2019.*

Subcomponents	Indicators	Value	Categorization
Tourism contribution to local economy	Percentage of local employees	3.1	Acceptable
	Percentage of national employees	4.5	Good
	Dependence of residents on tourism	2.5	Medium
	Benefit of tourism to residents	2.6	Medium
Average Resident satisfaction	Socioeconomic level (employment, insurance, housing)	3.1	Acceptable
	Quality of life	4.1	Good
	Quality of life	4.1	Good
Average Local identity	Preservation of culture and traditions according to residents	4.1	Good
	Preservation of culture and traditions according to tourists	4.3	Good
	Preservation of culture and traditions according to tourists	3.7	Acceptable
Average Infrastructure improvement	Infrastructure improvement level according to residents	4.0	Good
	Infrastructure improvement level according to tourists	3.3	Acceptable
	Infrastructure improvement level according to tourists	3.6	Acceptable
Average Component average		3.5	Acceptable
		3.7	Acceptable

Source: own elaboration.

The environmental impact component was classified as acceptable (Table 3). The indicators categorized as medium level were related to the participation of residents in environmental activities. Actions to save water (turn off the tap when not in use, reuse water) were the most frequent with 13% considering total residents. Whereas the participation of residents through beach cleaning was the most common activity (29% of total residents). Indicators with values higher than four were related to the level of conservation of the site, as well as the activities carried out by tourism companies to minimize environmental impacts.

Table 3.  
*Indicator values and categorization corresponding to the environmental impact component of the environmental dimension in Loreto Bay National Park, Baja California Sur, Mexico from surveys applied during winter (January-February), spring (March-April) and summer (June-July) 2018-2019.*

Subcomponents	Indicators	Value	Categorization
Participation of residents in environmental issues	Knowledge of the sustainability concept		
	Knowledge of the population about environmental monitoring	2.4	Medium
	Level of participation in environmental activities	2.5	Medium
	Willingness to start or continue participation in environmental activities	2.3	Medium
Average		3.7	Medium
Conservation and image of natural sites	Conservation state according to tourists	2.7	Medium
	Experience of visiting natural sites according to tourists	4.6	Good
Promedio Impact by tourist activities		4.7	Good
	Waste management	4.6	Good
	Use of renewable energy	4.8	Good
Average	Degree of sustainability of tourist activities	1.1	Poor
		4.5	Good
Impact by domestic activities	Use of saving lights	3.5	Acceptable
	Responsible use of water	4.3	Good
Average		3.4	Acceptable
		3.9	Acceptable
Component average		3.7	Acceptable

Source: own elaboration.

Finally, considering both dimensions, the sustainability level of tourism in LBNP was categorized as acceptable or almost sustainable (Figure 2).

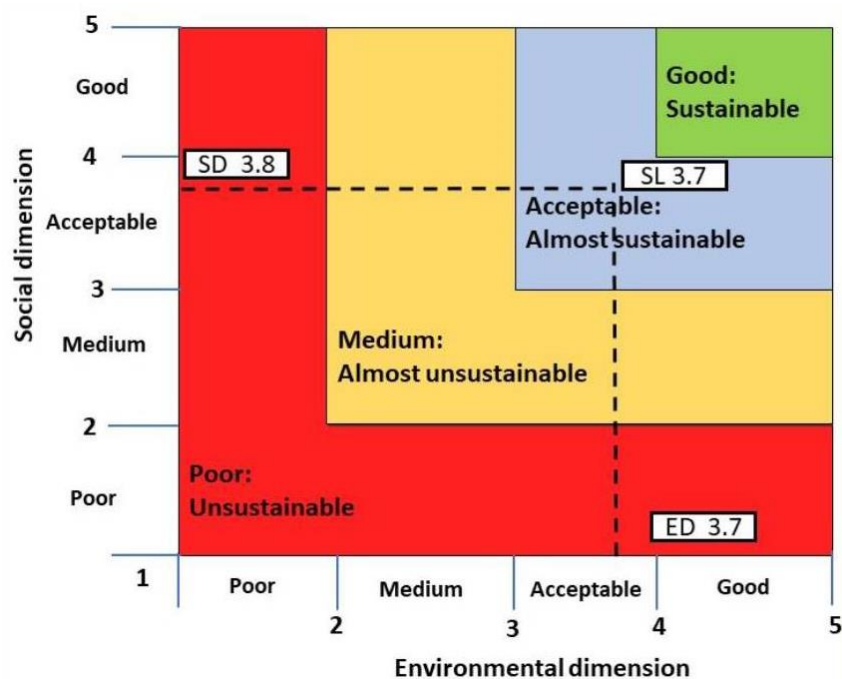


Figure 2. Barometer of Sustainability for Loreto Bay National Park, Baja California Sur, Mexico from surveys applied during winter (January-February), spring (March-April) and summer (June-July) 2018-2019. Both, social (SD) and environmental (ED) dimensions showed acceptable level. The sustainability level (SL) was categorized as acceptable or almost sustainable.

#### *Variables dependent on tourists' knowledge about Loreto Bay National Park*

The contingency analysis showed significant associations ( $p = 0.001$ ) between occupation and origin of the tourists with their knowledge about LBNP. Considering the total number of tourists ( $n = 240$ ) surveyed, the highest percentage of retired tourists (83.3%) and business owners (66.7%) were informed of PA before reaching their destination. Regarding the total of tourists by country of origin, most Canadians (90%,  $n=10$ ) were aware of PA; In contrast, 50% ( $n=81$ ) of Mexicans did not know of its existence.

*Variables dependent on residents' knowledge about Loreto Bay National Park and their level of dependence on tourism*

According to the perception surveys ( $n = 100$ ) of the resident population, a significant association ( $p = 0.05$ ) was observed between the place of birth and knowledge about LBNP. Most residents who were born outside BCS had null or poor knowledge (64%); in contrast, 59.5% of the native residents showed medium to high knowledge. Another significant association ( $p = 0.02$ ) was considering the neighborhoods where the residents lived; Nuevo Loreto showed a higher percentage of inhabitants with a high knowledge about LBNP (66.7%) while 65.7% of the Miramar neighborhood inhabitants had little or no knowledge. Regarding the economic benefit of tourism, only 28% of the total of the surveyed residents worked within the tourism sector. The Centro (downtown) neighborhood showed a greater number of inhabitants working within this sector (38.9%). The significant association ( $p = 0.03$ ) between the level of knowledge that residents had about LBNP, and their tourism dependence showed a higher percentage (51.7%) of inhabitants who worked within the tourism sector with acceptable to high knowledge; while 55.1% of residents who did not work within this sector had no knowledge.

## **Discussion**

### *Destination Management*

Effective management of a PA depends on integration and participation of the local community (Olomí-Solà et al. 2012). Therefore, factors that influence residents' perception and attitude should be identified. One of the factors is the knowledge they have about PA. According to the results, the level of knowledge that residents had about LBNP was medium. About half of the respondents (49%) had little or no knowledge about its size, location, and guidelines. The limited knowledge of local communities about the location, boundaries and objectives of a PA has been previously reported worldwide (Trakolis 2001; Jim and Xu 2002; Ferreira and

Freire 2009; Olomí-Solà et al. 2012). Another one was the lack of residents' involvement in decision-making about PA, which is caused by ignorance of the area (Jim and Xu 2002).

Companies that offer ecotourism activities influence consumer decisions and supplier behavior, so they may contribute to protecting the environment (Budeanu 2005; Gopal 2014). The lack of knowledge of tourist guides about PA, as well as the way to transmit the information to visitors, were some of the main problems that have been observed in previous studies (Carbone 2006). However, in this study, the tour operators' knowledge about the LBNP Management Program was rated as good, which may have been related to their participation in environmental and research programs - also rated as good. In contrast to a study conducted in Australia, most tour operators had not received information from scientists about wildlife protection (Rodger, Moore, and Newsome 2007).

The collaboration of tour operators with research institutions provides benefits for both, as well as for tourists. Tour operators gain knowledge about the potential risks of tourism activities, allowing them to offer a better service and increase their competitiveness in the market. Tourists benefit from being able to enjoy nature; while scientists have research material (Wolf, Croft, and Green 2019). For these benefits to continue, educational workshops are necessary, as well as informational meetings where research findings are disclosed (Rodger, Moore, and Newsome 2007). These workshops have increased the level of knowledge of tourist guides about PA, as well as their abilities to interpret and transmit information to tourists (Roggenbuck, Williams, and Bobinski 1992; Randall and Rollins 2009). According to a study carried out in a Norwegian National Park, knowledge and experience of these tourism actors contributed to PA management (Haukeland 2011). A good relationship between tour operators and PA management personnel can avoid conflicts between the actors involved, reduce environmental impacts, increase the level of tourist satisfaction, thus improve the company's competitiveness in the market (Roggenbuck, Williams, and Bobinski 1992; López-Espinosa de los Monteros, 2002; Carbone, 2006; Xin and Chan, 2014).

Regarding communication about the sustainable tourism subcomponent, the indicator with the lowest score was related to the information provided by tour operators through their website. Information about LBNP, its protection category, and the allowed activities must be included. New information technologies allow visitors to inform themselves in advance about PA management and protection

policies, which may increase their willingness to support these regulations (Eagles, McCool, and Haynes 2002).

The results indicated that tourism companies provide information about their sustainable practices mainly during the tours. Through environmental education talks, tourist guides should provide information about the destination to tourists and influence their behavior to reduce environmental impacts (Choi and Sirakaya 2006). Previous studies in PA have shown that tourists have a positive attitude towards the regulations established during the tours, which increases their level of satisfaction (Tsaour, Lin, and Lin 2006; Chan and Baum 2007; Baral, Stern, and Hammett 2012; Sangpikul 2020).

The aptitude of tourist service was the subcomponent with the highest score. It assessed the level of tourist satisfaction and quality of the service, which were indicators of successful management (Rodger, Moore, and Taplin 2012). Perception of security was the main strength of Loreto, which confirmed that reported by Cruz-Chávez et al. (2016) where 97% of Loreto's visitors did not feel insecure. This perception represents a very important point in favor for Loreto, since it has been considered as one of the main factors affecting tourism demand in developing countries (Eagles, McCool, and Haynes 2002). The indicators related to tourism tours and the experience of visiting natural sites also had high values. This result confirmed that the satisfaction of tourists visiting PA depends on the opportunity to observe something special or unique, including natural landscapes, wildlife and vegetation (Carbone 2006).

### *Social, economic, and cultural impacts*

Tourism provides economic benefits to local communities living in or near a PA (Eagles, McCool, and Haynes 2002). Income derived from employment, investment and business are the main economic benefits of tourism (Mendoza-Ontiveros and González-Sosa, 2014). However, the percentage of the Loreto population that works within the tourism sector was low (28%) and the benefit that residents obtain through tourism obtained a medium score. In addition, the benefited population was confined to the central areas of the city, where the flow of tourism was greater. These results agree with a study conducted in a nature reserve



in China, where local community involvement in tourism was limited due to the unfavorable location of their housing and lack of capital to start their own business (Xu et al. 2009). In a National Park in Australia, limited benefit deriving from tourism was associated with lack of skills, education and motivation in local communities (Strickland-Munro and Moore 2013). However, despite the reduced and unequal benefit of tourism, residents' perception of quality of life was assessed as good, which may be attributed to the socioeconomic level of the residents surveyed, as well as the preservation of local identity.

The support of the local community is essential for the sustainable development of tourism (Inbakaran and Jackson 2005; Zhang, Inbakaran, and Jackson 2006). Therefore, tourism should provide equitable benefit (Alrwajfah, Almeida-García, and Cortés-Macías 2019). Although the percentage of local employees within tourism obtained an acceptable rating, this value could be improved. According to Xu et al. (2009) the use of local goods and services should be promoted, as well as employing residents to generate economic benefits for the community. One way of achieving these benefits could be by increasing employment and self-employment opportunities, the latter by providing capital support to start local businesses (Tsaor, Lin, and Lin 2006; Mathew and Sreejesh 2017). Equality of economic benefits, as well as the active participation and empowerment of residents have been reported to contribute to improving both the conservation of the area and socioeconomic level of the local community (Imran, Alam, and Beaumont 2014; Oldekop et al. 2016). The effectiveness of PA management depends on the satisfaction of the local community; thus, to avoid disagreements and conflicts, residents should be involved in PA management issues and in decision-making processes (Ferreira and Freire 2009).

### *Environmental impact*

Knowledge and participation of residents in environmental activities were the indicators that obtained the lowest rating, which indicated they are the main issues where efforts are required. Water scarcity and coastal pollution were identified as the main concerns. Shortage of drinking water in Loreto represents a major problem. The source comes from an aquifer, which is susceptible to saline intrusion due to its overexploitation (Ganster, Arizpe, and Ivanova 2007). Because of this

shortage, when the demand for water increases, the supply decreases (Mendoza-Ontiveros and González-Sosa 2014), which explains the practices of the residents to save water.

Regarding collaboration in beach cleaning, it is likely the activity organized with the most diffusion and frequency. According to the perception of the respondents, the main reason for low participation is due to ignorance of these activities. Concern and knowledge of the environment should be promoted among the local community. Residents' knowledge about PA conservation issues, as well as management objectives, have been linked to positive attitudes (Ormsby and Kaplin 2005; Moorman 2006). The government, schools and media have been considered as the main sources of information about environmental issues (Choudri et al. 2016), so they have a strong commitment to environmental education.

LBNP conservation status obtained the highest category according to the opinion of tourists. In contrast to the Nevado de Toluca Flora and Fauna Protection Area, whose main problems were overexploitation of natural resources and pollution (Osorio-García, Monge-Amores, SerranoBarquín, Cortés-Soto. 2017). Conservation of natural sites may be related to the adequate management of waste by companies and the degree of sustainability of the tourist activities they offer, which coincides with the low impact techniques performed by tour operators in La Paz Bay (López-Espinosa de los Monteros 2002). One of the main sustainable practices carried out by the LBNP tourist guides is the reduction of generating garbage by using reusable or biodegradable containers. Likewise, the "leave no trace" technique was mentioned by all companies surveyed.

This technique consists of an environmental education program that seeks to influence the behavior of visitors to minimize their impact, which has been implemented in various PA including other National Parks (Backman et al. 2018).

The use of renewable energy was the only indicator within the environmental dimension evaluated as poor. This result differed from a study performed in a PA in Nepal, where ecotourism promoted the use of alternative energy (Anup, Kedar, and Ramesh 2015). Possibly most tourism companies do not use this type of energy because the economic gains are not immediate, or due to ignorance of its advantages (Schlüter 1996; Tepelus 2005). According to the perception of the companies surveyed - except for the use of renewable energy - the impact of tourism activities on LBNP was minimal. The integration of sustainable practices by tour operators provides them with benefits such as, a good reputation with consumers, as well as

better relationships with suppliers and local communities (TOIST, Tour Operators' Initiative for Sustainable Tourism Development, 2003).

*Variables dependent on tourists' knowledge about Loreto Bay National Park*

Place of origin was one of the factors that influenced the knowledge that tourists had about the existence of LBNP. The National Park category functions as a protection status label, which has positively influenced the decision of tourists to visit the area (Reinius and Fredman 2007). Previous reports have indicated that the National Park label represents a greater motivation in foreign tourists than in local ones (Weiler and Seidl 2004). The greater the distance between the place of origin and tourist destination, the investment of time and money is higher, as well as trip-planning time (Richards 2002), during which the tourist is likely to obtain information about PA. These results were consistent with this study since the percentage of foreign tourists who knew of the existence of LBNP was higher than that of Mexicans. These results also coincide with those reported by Hernández-Trejo et al. (2009) at the same site.

Tourists' occupation was the other variable that showed dependence with the level of knowledge of LBNP. According to Eagles, McCool, and Haynes (2002) older people are more interested in activities that include wildlife observation and nature study, which coincides with a higher percentage of retired tourists who showed knowledge about the presence of LBNP. Increased longevity in industrialized and developed countries, coupled with early retirement and good savings, have been reported to allow individuals interested in wildlife to undertake their travels once they have retired (Eagles, McCool, and Haynes 2002; UNEP and CMS 2006).

*Variables dependent on residents' knowledge about Loreto Bay National Park and its environmental activities*

The variables that showed a significant relationship with the level of knowledge of the residents about LBNP were place of birth, housing, and employment location within the tourism sector. The native residents had a greater knowledge of LBNP

than foreigners, which may be attributed to the fact that they have lived near this PA most of their lives. Ferreira and Freire (2009) found that residents who have lived for more than 20 years near PA had a greater understanding of its existence. Native residents may have had a greater opportunity to participate in environmental informational meetings and workshops, or have interacted with PA management authorities (Ormsby and Kaplin 2005).

The inhabitants of the Nuevo Loreto neighborhood showed a greater knowledge of LBNP than those of Miramar, as well as a higher level of education; 80% of the respondents from the first section reached the professional degree, in contrast to only 21% from the second one. These results agree with Olomí-Solà et al. (2012) who found a relationship between literate residents and knowledge about PA. In previous studies, resident education has shown a positive effect on conservation perception and attitudes (Imran, Alam, and Beaumont 2014; Ardoin, Bowers, and Gaillard 2020). In communities near Serengeti National Park in Tanzania, residents with a higher educational level have a more positive view of PA because a greater opportunity in the labor field reduces dependence on the Park's natural resources (Kideghesho, Røskaft, and Kaltenborn 2007).

Individuals working within the tourism sector gained a greater understanding of LBNP. Olomí-Solà et al. (2012), found that residents working within the tourism sector had a greater knowledge of Dandeli Sanctuary in India. This relationship may be explained with the fact that individuals who work within the tourism industry depend economically on PA resources. Therefore, the success of their job or business depends on their knowledge about PA, and they might have had a greater opportunity to participate in informative meetings and workshops on LBNP management.

## Conclusions

The indicators that obtained a lower value corresponded to residents' knowledge about PA, the benefit they obtain from tourism, as well as their participation in environmental activities. To reach a sustainable level, decision makers should include local government and PA management staff and implement measures to increase equal community participation. These measures may include

environmental education workshops and informational meetings where efforts are made to integrate residents equitably and inform them about the objectives of the LBNP Management Program, environmental problems, and actions to prevent them. The economic benefit should be increased through entrepreneurship workshops, capital supports to start new companies and promotion of local services and products.

One of the main contributions of the proposed method was the integration of three stakeholders, whose participation plays an essential role in the sustainable development of tourism. These groups corresponded to residents, visitors and tourism companies that offer tours in PA. Most of the previous studies have focused on a single stakeholder. However, the results demonstrated the importance of evaluating the three groups of stakeholders in the same study, given that they can influence both social and environmental performance of the destination sustainability. Generally, the perceptions and attitudes of stakeholders are assessed using a certain set of variables, but the role of each of these groups in tourism is different. For this reason, this study assessed different indicators for each one of the stakeholders.

Another contribution of the study was the application of the contingency analysis, which allowed identifying the variables that influenced the stakeholder's knowledge about LBNP. This factor is generally not addressed in perception studies. However, it has revealed information about the involvement and interest of residents, training and commitment of tourism companies, as well as promotion of PA as a tourist destination. These results can directly influence the conservation of the site. Therefore, they all should be considered in decision-making about its management.

Footnotes:

**Declaration of interest statement**

No potential conflict of interest was reported by the authors.

## Acknowledgments

This study was funded by Centro de Investigaciones Biológicas del Noroeste S. C. (Cibnor, PPAC). The authors thank tourism companies of Loreto for their willingness, support and providing valuable information for the development of this study. We would also like to thank Diana Fischer for editorial services.

## References

- Abukari, H. y Mwalyosi, R. B. (2020). Local communities' perceptions about the impact of protected areas on livelihoods and community development. *Glob Ecol Conserv.* 22: e00909.
- Al-Tokhais, A. y Thapa, B. (2019). Stakeholder perspectives towards national parks and protected areas in Saudi Arabia. *Sustain*, 11.
- Allendorf, T. D. (2020). A Global Summary of Local Residents' Attitudes toward Protected Areas. *Hum Ecol.* 48:111-118.
- Allendorf, T. D., Smith, J. L. D., Anderson, D. H. (2007). Residents' perceptions of Royal Bardia National Park, Nepal. *Landsc Urban Plan.* 82:33-40.
- Alrwajfah, M. M., Almeida-García, F., Cortés-Macías, R. (2019). Residents' perceptions and satisfaction toward tourism development: A case study of Petra region, Jordan. *Sustain.* 11.
- Anup, K. C., Kedar, R., Ramesh, P. S. (2015). Role of ecotourism in environmental conservation and socioeconomic development in Annapurna conservation area, Nepal. *Int J Sustain Dev World Ecol.* 22:251-258.
- Ardoin, N. M., Bowers, A. W., Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. *Biol Conserv.* 241:108224.
- Arnberger, A., Eder, R., Alex, B., Sterl, P., Burns, R. C. (2012). Relationships between national-park affinity and attitudes towards protected area management of visitors to the Gesäuse National Park, Austria. *For Policy Econ.* 19:48-55.
- Ashok, S., Tewari, H. R., Behera, M. D., Majumdar, A. (2017). Development of ecotourism sustainability assessment framework employing Delphi, C&I and participatory methods: A case study of KBR, West Sikkim, India. *Tour Manag Perspect.* 21:24-41.

- Backman, C. L., Vaske, J. J., Lawhon, B., Vagias, W. M., Newman, P., Coulson, E., Taff, B. D. (2018). Visitors' Views of Leave No Trace Principles across a National Park, a National Forest, and Three State Parks. *J Park Recreat Admi.* 36:41-54.
- Balmford, A., Green, J. M. H., Anderson, M., Beresford, J., Huang, C., Naidoo, R., Walpole, M., Manica, A. (2015). Walk on the Wild Side: Estimating the Global Magnitude of Visits to Protected Areas. *PLOS Biol.* 13: e1002074.
- Baral, N., Stern, M. J., Hammett, A. L. (2012). Developing a scale for evaluating ecotourism by visitors: a study in the Annapurna Conservation Area, Nepal. *J Sustain Tour.* 20:975-989.
- Bonilla-Moheno, M. y García-Frapolli, E. (2012). Conservation in Context: A comparison of conservation perspectives in a mexican protected area. *Sustainability.* 4:2317-2333.
- Budeanu, A. (2005). Impacts and responsibilities for sustainable tourism: A tour operator's perspective. *J Clean Prod.* 13:89-97.
- Byrnes, T., Buckley, R., Howes, M., Arthur, J.M. (2016). Environmental management of boating related impacts by commercial fishing, sailing, and diving tour boat operators in Australia. *J Clean Prod.* 111:383-398.
- Carbone, G. (2006). Perspectives if the tourism industry on the elements affecting visitor satisfaction in protected areas. *PARKS.* 16:53-57.
- Chan, J. K. L. y Baum, T. (2007). Ecotourists' perception of ecotourism experience in Lower Kinabatangan, Sabah, Malaysia. *J Sustain Tour.* 15:574-590.
- Chen, H., Shivakoti, G., Zhu, T. Maddox, D. (2012). Livelihood sustainability and community based co-management of forest resources in China: Changes and improvement. *Environ Manage.* 49:219-228.
- Choi, H. C. y Murray, I. (2010). Resident attitudes toward sustainable community tourism. *J Sustain Tour.* 18:575-594.
- Choi, H. C. y Sirakaya, E. (2006). Sustainability indicators for managing community tourism. *Tour Manag.* 27:1274-1289.
- Choudri, B. S., Baawain, M., Al-Sidairi, A., Al-Nadabi, H., Al-Zeidi, K. (2016). Perception, knowledge and attitude towards environmental issues and management among residents of Al-Suwaiq Wilayat, Sultanate of Oman. *Int J Sustain Dev World Ecol.* 23:433-440.
- Comisión Nacional de Áreas Naturales Protegidas (Conanp, 2021). Programa de Manejo Parque Nacional Bahía de Loreto, México. Primera ed., México: Conanp.
- Cruz-Chávez, P., Cruz-Chávez, G., Juárez-Mancilla, J., Urciaga-García, J. I. (2016). Divergencias de competitividad en destinos turísticos de Baja California Sur. *Rev Glob Negocios.* 4:95-104.
- Dinica, V. (2018). The environmental sustainability of protected area tourism: towards a concession-related theory of regulation. *J Sustain Tour.* 26:146-164.

- Dowling, R. K. (1993). Tourism Planning, People, and the Environment in Western Australia. *J Travel Res.* 31:52-58.
- Eagles, P. F. J., McCool, S. F., Haynes, C. D. (2002). *Sustainable Tourism in Protected Areas Guidelines for Planning and Management*. Cambridge, UK: IUCN Gland.
- Eagles, P. F. J., Romagosa, F., Buteau-Duitschaever, W. C., Havitz, M., Glover, T. D., McCutcheon, B. (2013). Good governance in protected areas: An evaluation of stakeholders' perceptions in British Columbia and Ontario Provincial Parks. *J Sustain Tour* . 21:60-79.
- Farrell, T. A. y Marion, J. L. (2001). Identifying and assessing ecotourism visitor impacts at eight protected areas in Costa Rica and Belize. *Environ Conserv.* 28:215-225.
- Ferreira, M. N. E. y Freire, N. C. (2009). Community perceptions of four protected areas in the Northern portion of the Cerrado hotspot, Brazil. *Environ Conserv.* 36:129-138.
- Font, X., Garay, L., Jones, S. (2016). Sustainability motivations and practices in small tourism enterprises in European protected areas. *J Clean Prod.* 137:1439-1448.
- Ganster, P., Arizpe, O., Ivanova, A., editors (2007). *Loreto: The future of the First Capital of the Californias*. San Diego, California: San Diego State University Press.
- Garrido-Luque, A. y Alvarado-Estramiana, J. L. (1995). *Técnicas de Análisis Estadístico en Ciencias Sociales*. Primera. Madrid, España: Servicio de Publicaciones Universidad Complutense.
- Gobierno de Baja California Sur (GBCS, 2018). *Loreto. Información Estratégica*. [place unknown].
- Gopal, S. 2014. Environmental sustainability: the tour operator's perceptions. *Tour an Int Multidiscip J Tour.* 9:127-143.
- Hatipoglu, B., Alvarez, M. D., Ertuna, B. (2016). Barriers to stakeholder involvement in the planning of sustainable tourism: The case of the Thrace region in Turkey. *J Clean Prod.* 111:306-317.
- Haukeland, J. V. (2011). Tourism stakeholders' perceptions of national park management in Norway. *J Sustain Tour* . 19:133-153.
- Heck, N., Dearden, P., McDonald, A., Carver, S. (2011). Stakeholder opinions on the assessment of MPA effectiveness and their interests to participate at Pacific Rim National Park Reserve, Canada. *Environ Manage.* 47:603-616.
- Hernández-Trejo, V., Urciaga García, J., Hernández-Vincent, M. y Palos Arocha, L. (2009). Valoración económica del Parque Nacional Bahía de Loreto a través de los servicios de recreación de pesca deportiva. *Región y Sociedad*, 21(44):195-223.
- Ibáñez-Pérez, R. M. (2015). Medición de la Sustentabilidad Turística en una Área Natural Protegida del Noroeste de México. *Áreas Nat Protegidas Scr.* 1:9-34.
- Ibáñez-Pérez, R. M. (2014). Turismo y Sustentabilidad en Pequeñas Localidades Costeras de Baja California Sur (BCS). *El Periplo Sustentable.* 0:67-101.



- Imran, S., Alam, K., Beaumont, N. (2014). Environmental orientations and environmental behaviour: Perceptions of protected area tourism stakeholders. *Tour Manag.* 40:290-299.
- Imbakaran, R., Jackson, M. (2005). Marketing regional tourism: How better to target and address community attitudes to tourism. *J Vacat Mark.* 11:323-339.
- Instituto Nacional de Estadística y Geografía (INEGI, 2016). *Anuario estadístico y geográfico de Baja California Sur 2016*. México
- INEGI (2017). *Anuario Estadístico y Geográfico de Baja California Sur 2017*. México.
- Jim, C. Y. y Xu, S. S. W. (2002). Stifled stakeholders and subdued participation: Interpreting local responses toward Shimentai nature reserve in South China. *Environ Manage.* 30:327-341.
- Jones, N., McGinlay, J., Dimitrakopoulos, P. G. (2017). Improving social impact assessment of protected areas: A review of the literature and directions for future research. *Environ Impact Assess Rev.* 64:1-7.
- Khairatp, G. y Maher, A. (2012). Integrating sustainability into tour operator business: an innovative approach in sustainable tourism. *Tour an Int Multidiscip J Tour.* 7:213-233.
- Kideghesho, J. R., Røskaft, E., Kaltenborn, B. P. (2007). Factors influencing conservation attitudes of local people in Western Serengeti, Tanzania. *Biodivers Conserv.* 16:2213-2230.
- Kovács, E., Kelemen, E., Kalóczkai, Á., Margóczy, K., Pataki, G., Gébert, J., Málovics, G., Balázs, B., Roboz, Á., Krasznai Kovács, E., Mihók, B. (2015). Understanding the links between ecosystem service trade-offs and conflicts in protected areas. *Ecosyst Serv.* 12:117-127.
- Lankford, S. V. y Howard, D. R. (1994). Developing a tourism impact attitude scale. *Ann Tour Res.* 21:121-139.
- Leung, Y., Spenceley, A., Hvenegaard, G., Buckley, R., Groves, C. (2018). Tourism and visitor management in protected areas: guidelines for sustainability. Swtzeland: IUCN.
- Li, W., Ge, X., Liu, C. (2005). Hiking trails and tourism impact assessment in protected area: Jiuzhaigou Biosphere Reserve, China. *Environ Monit Assess.* 108:279-293.
- Lockwood, M. (2010). Good governance for terrestrial protected areas: A framework, principles and performance outcomes. *J Environ Manage.* 91:754-766.
- López-Espinosa de los Monteros, R. (2002). Evaluating ecotourism in natural protected areas of La Paz Bay, Baja California Sur, México: ecotourism or nature-based tourism? *Biodivers Conserv.* 11:1539-1550.
- Mannetti, L. M., Götttert, T., Zeller, U., Esler, K. J. (2019). Identifying and categorizing stakeholders for protected area expansion around a national park in Namibia. *Ecol Soc.* 24.

- Mathew, P. V. y Sreejesh, S. (2017). Impact of responsible tourism on destination sustainability and quality of life of community in tourism destinations. *J Hosp Tour Manag.* 31:83-89.
- McNicol, B. y Rettie, K. (2018). Tourism operators' perspectives of environmental supply of guided tours in national parks. *J Outdoor Recreat Tour.* 21:19-29.
- Mehta, J. N. y Heinen, J. T. (2001). Does community-based conservation shape favorable attitudes among locals? An empirical study from Nepal. *Environ Manage.* 28:165-177.
- Mendoza-Ontiveros, M. M. y González-Sosa, J. C. (2014). Impactos socioculturales del turismo en el Centro Integralmente Planeado Loreto, Baja California Sur, México. Percepción de los residentes locales. *Teoría y Prax.:*117-146.
- Mitsui, S., Kubo, T., Shoji, Y. (2020). Understanding residents' perceptions of nature and local economic activities using an open-ended question before protected area designation in Amami Islands, Japan. *J Nat Conserv.* 125857.
- Moorman, R. S. (2006). Benefits of local residents visiting La Selva Biological Station, Costa Rica. *Environ Conserv.* 33:89-99.
- Nyaupane, G. P. y Poudel, S. (2011). Linkages among biodiversity, livelihood, and tourism. *Ann Tour Res.* 38:1344-1366.
- Oldekop, J. A., Holmes, G., Harris, W. E., Evans, K. L. (2016). A global assessment of the social and conservation outcomes of protected areas. *Conserv Biol.* 30:133-141.
- Olomí-Solà, M., Zorondo-Rodríguez, F., Triguero-Mas, M., Jha, N., Reyes-García, V. (2012). Local Residents' Knowledge about Protected Areas: A Case Study in Dandeli Wildlife Sanctuary, India. *Soc Nat Resour.* 25:410-420.
- Organización Mundial del Turismo (OMT, 2005). *Indicadores de desarrollo sostenible para los destinos turísticos: Guía práctica.* Madrid, España.
- Ormsby, A. y Kaplin, B. A. (2005). A framework for understanding community resident perceptions of Masoala National Park, Madagascar. *Environ Conserv.* 32:156-164.
- Osorio-García, M., Monge-Amores, L. E., Serrano-Barquín, R. del C., Cortés-Soto, I.Y. (2017). Perfil del visitante de naturaleza en Latinoamérica: prácticas, motivaciones e imaginarios. Estudio comparativo entre México y Ecuador. *PASOS Rev Tur y Patrim Cult.* 15:713-729.
- Oviedo-García, M.Á., Vega-Vázquez, M., Castellanos-Verdugo, M., Orgaz-Agüera, F. (2019). Tourism in protected areas and the impact of servicescape on tourist satisfaction, key in sustainability. *J Destin Mark Manag.* 12:74-83.
- Pearce, J. y Dowling, R. (2019). Monitoring the quality of the visitor experience: An evolutionary journey. *J Outdoor Recreat Tour.* 25:87-90.
- Pérez-López, C. (2005). *Muestreo Estadístico Conceptos y problemas resueltos.* Madrid, España: Pearson Prentice Hall.

- Pickering, C. M. (2010). Ten factors that affect the severity of environmental impacts of visitors in protected areas. *Ambio*. 39:70-77.
- Poudel, S., Nyaupane, G. P., Budruk, M. (2014). Stakeholders' Perspectives of Sustainable Tourism Development: A New Approach to Measuring Outcomes. *J Travel Res*. 55:465-480.
- Prescott-Allen, R. (1997). *Barometer of · Sustainability Measuring and communicating wellbeing and sustainable development*. Gland, Suiza: IUCN.
- Puhakka, R., Sarkki, S., Cottrell, S.P., Siikamäki, P. (2009). Local discourses and international initiatives: Sociocultural sustainability of tourism in Oulanka National Park, Finland. *J Sustain Tour* . 17:529-549.
- Randall, C., Rollins, R. B. (2009). Visitor perceptions of the role of tour guides in natural areas. *J Sustain Tour* . 17:357-374.
- Redpath, S. M., Young, J., Evely, A., Adams, W. M., Sutherland, W. J., Whitehouse, A., Amar, A., Lambert, R. A., Linnell, J. D. C., Watt, A., Gutiérrez, R. J. (2013). Understanding and managing conservation conflicts. *Trends Ecol Evol*. 28:100-109.
- Reinius, S. W. y Fredman, P. (2007). Protected areas as attractions. *Ann Tour Res*. 34:839-854.
- Rice, W. L., Taff, B. D., Miller, Z. D., Newman, P., Zipp, K. Y., Pan, B., Newton, J. N., D'Antonio, A. (2020). Connecting motivations to outcomes: A study of park visitors' outcome attainment. *J Outdoor Recreat Tour* . 29:100272.
- Richards, G. (2002). Tourism attraction system: Exploring cultural behavior. *Ann Tour Res*. 29:1048-1064.
- Rodger, K., Moore, S. A., Newsome, D. (2007). Wildlife tours in Australia: Characteristics, the place of science and sustainable futures. *J Sustain Tour* . 15:160-179.
- Rodger, K., Moore, S. A., Taplin, R. (2012). *Visitor satisfaction, loyalty, and protected areas: A review and the future*. Report prepared for the WA Department of Environment and Conservation, Parks Victoria, and the Parks Forum. Murdoch WA.
- Rodger, K., Taplin, R. H., Moore, S. A. (2015). Using a randomised experiment to test the causal effect of service quality on visitor satisfaction and loyalty in a remote national park. *Tour Manag*, 50:172-183.
- Roggenbuck, J. W., Williams, D. R., Bobinski, C. T. (1992). Public-Private Partnership to Increase Commercial Tour Guides' Effectiveness as Nature Interpreters. *J Park Recreat Admi* , 10:41-50.
- Ruschkowski, E. von., Burns, R., Arnberger, A., Smaldone, D., Meybin, J. (2013). Recreation Management in Parks and Protected Areas: A Comparative Study of Resource Managers Perceptions in Austria, Germany, and the United States. *J Park Recreat Admi* , 31:95-114.

- Sangpikul, A. (2020). Tourist perceptions of guided ecotourism tours in Thailand. *Tour Hosp Res.* 20:245-256.
- Schirpke, U., Scolozzi, R., Da Re, R., Masiero, M., Pellegrino, D., Marino, D. (2018). Recreational ecosystem services in protected areas: A survey of visitors to Natura 2000 sites in Italy. *J Outdoor Recreat Tour.* 21:39-50.
- Schlüter, R.G. (1996). Energía renovable y turismo en la Patagonia Argentina. *Estud y Perspect en Tur.* 5:52-71.
- Srivongs, K. y Tsuchiya, T. (2012). Relationship between local residents' perceptions, attitudes and participation towards national protected areas: A case study of Phou Khao Khouay National Protected Area, central Lao PDR. *For Policy Econ.* 21:92-100.
- Smith, A. J., Tuffin, M., Taplin, R. H., Moore, S. A., Tonge, J. (2014). Visitor segmentation for a park system using research and managerial judgement. *J Ecotourism.* 13:93-109.
- Strickland-Munro, J. y Moore, S. (2013). Indigenous involvement and benefits from tourism in protected areas: A study of Purnululu National Park and Warmun Community, Australia. *J Sustain Tour.* 21:26-41.
- Tepelus, C. M. (2005). Aiming for sustainability in the tour operating business. *J Clean Prod.* 13:99-107.
- Timur, S. y Getz, D. (2008). A network perspective on managing stakeholders for sustainable urban tourism. *Int J Contemp Hosp Manag.* 20:445-461.
- Tour Operators' Initiative for Sustainable Tourism Development (TOIST, 2003). *Sustainable Tourism: The Tour Operators' Contribution.* Primera Ed. París, Francia: UNEP.
- Trakolis, D. (2001). Local people's perceptions of planning and management issues in Prespes Lakes National Park, Greece. *J Environ Manage.* 61:227-241.
- Troyo-Vega, B., Arnaud-Franco, G., Galina-Tessaró, P., Ramírez-Urbán, J., Swartz, S., Ortega-Rubio, O. (2018). Evaluación del servicio turístico en el avistamiento de la ballena gris: Baja California Sur, México. *Econ Soc y Territ.* 18:853-880.
- Tsaur, S. H., Lin, Y. C., Lin, J. H. (2006). Evaluating ecotourism sustainability from the integrated perspective of resource, community, and tourism. *Tour Manag.* 27:640-653.
- Tverijonaite, E., Ólafsdóttir, R., Thorsteinsson, T. (2018). Accessibility of protected areas and visitor behaviour: A case study from Iceland. *J Outdoor Recreat Tour.* 24:1-10.
- United Nations Environment Programme, Conservation of Migratory Species of Wild Animals (UNEP, CMS, 2006). *Wildlife watching and tourism: A study on the benefits and risks of a fast-growing tourism activity and its impacts on species.* Alemania.
- United Nations Environment Programme, World Tourism Organization (ENEP, WIO, 2005). *Making Tourism More Sustainable. A Guide for Policy Makers.*

- Waligo, V. M., Clarke, J., Hawkins, R. (2013). Implementing sustainable tourism: A multi-stakeholder involvement management framework. *Tour Manag.* 36:342-353.
- Watson, J. E. M., Dudley, N., Segan, D. B., Hockings, M. (2014). The performance and potential of protected areas. *Nature.* 515:67-73.
- Weaver, D. (2006). *Sustainable Tourism: Theory and Practice*. Gran Bretaña: Elsevier Ltd.
- Weiler, S. y Seidl, A. (2004). What's in a name? Extracting econometric drivers to assess the impact of national park designation. *Reg Sci.* 44:245-262.
- White, R. M., Fischer, A., Marshall, K., Travis, J. M. J., Webb, T. J., di Falco, S., Redpath, S. M., van der Wal, R. (2009). Developing an integrated conceptual framework to understand biodiversity conflicts. *Land use policy.* 26:242-253.
- Wolf, I. D., Croft, D. B., Green, R. J. (2019). Nature conservation and nature-based tourism: A paradox? *Environ - MDPI.* 6:1-22.
- World Tourism Organization (WTO, 2004). Indicators of Sustainable Development for Tourism Destinations A Guidebook. España.
- Xin, T. K. and Chan, J. K. L. (2014). Tour Operator Perspectives on Responsible Tourism Indicators of Kinabalu National Park, Sabah. *Procedia -Social Behav Sci.* 144:25-34.
- Xu, J., Lü, Y., Chen, L., Liu, Y. (2009). Contribution of tourism development to protected area management: Local stakeholder perspectives. *Int J Sustain Dev World Ecol.* 16:30-36.
- Zar, J. H. (1996). *Biostatistical Analysis*. Tercera. New Jersey, Estados Unidos: Prentice Hall.
- Zhang, J., Inbakaran, R. J., Jackson, M. S. (2006). Understanding community attitudes towards tourism and host-guest interaction in the urban-Rural border region. *Tour Geogr.* 8:182-204.
- Zhang, Y., Xiao, X., Cao, R., Zheng, C., Guo, Y., Gong, W., Wei, Z. (2020). How important is community participation to eco-environmental conservation in protected areas? From the perspective of predicting locals' pro-environmental behaviours. *Sci Total Environ.* 139889.