



WWF

STUDY

2016



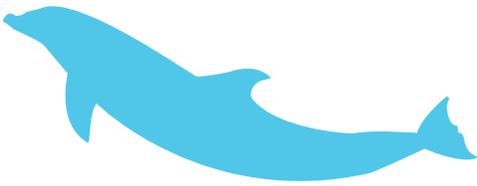
Marine Iguana, Floreana Island, Galapagos Islands, Ecuador © Hugo Amal

# Does Tourism Growth in the Galapagos Islands Contribute to Sustainable Economic Development?

## Summary



The ecosystems of the Galapagos Islands support a range of tourism activities that depend on the quality of the natural environment. Tourism is one of the most important sources of income for the local economy and due to the archipelago's international fame the number of visitors grows continuously. Without proper management of this growth, the expansion of the industry may increasingly threaten the natural environment, even though most visitors are attracted to the islands because of the unique nature and habitats found there. Despite the fact that tourism is highly connected to the condition of the environment, the economic contribution of the ecosystems to the industry has never been socioeconomically quantified. Investigation of the correlation between the tourism industry and the ecosystems is essential. This information can help raise awareness and assist policy-makers in long-term decisions concerning nature and tourism management in the Galapagos Islands.



**THE GALAPAGOS  
ARCHIPELAGO  
STILL CONTAINS ABOUT  
95%  
OF ITS ORIGINAL  
BIODIVERSITY**

An exit survey was conducted among more than four hundred departing visitors to determine the perceived value of nature for the tourism industry. This study estimated visitors' willingness to pay for nature conservation in the Galapagos. The results of the study provided an understanding of visitors' perceived value of different ecosystems and recreational services. With these findings some indications can be given about the socioeconomic carrying capacity of the islands.

The values obtained from the exit survey were used to perform an extended cost-benefit analysis of three different tourism growth scenarios: no growth, moderate growth, and rapid growth. The study's results indicate that rapid uncontrolled growth has short term economic benefits which are not likely to last in the long run. A controlled amount of visitors, on the contrary, is likely to be more beneficial for the sustained wellbeing of the archipelago. Limiting tourism will help preserve the ecosystems' health and attract visitors with a high willingness to pay to visit and conserve Galapagos' unique ecosystems. Therefore, a management plan that controls arrivals within the carrying capacity of the Islands will deliver the most sustained profitability.

## The Challenge

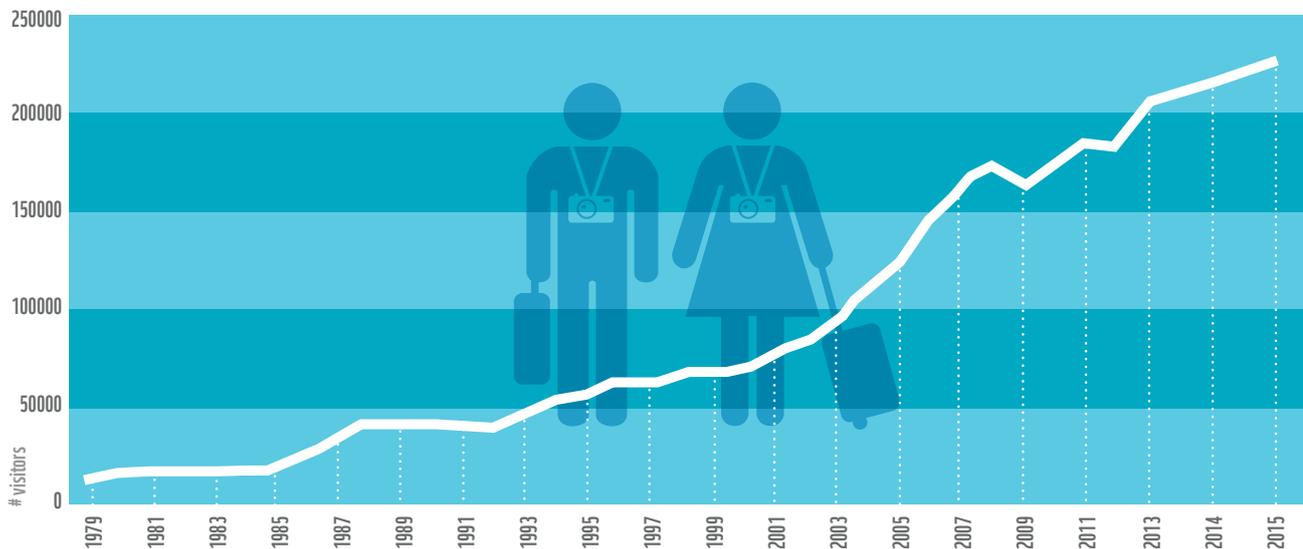
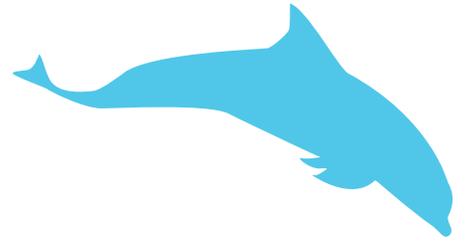


Figure 1 Growth of tourism on the Galapagos

The Galapagos Islands are home to many unique flora and fauna species and the archipelago still contains about 95% of its original biodiversity. This pristine environment is a renowned tourism destination and has always been regarded as a prime site for academic research in the life and earth sciences. Because of its international fame, the tourism industry is constantly growing, and it is the engine behind



# IN 2015 THE GALAPAGOS HOSTED A TOTAL OF 224,745 VISITORS

socioeconomic development in the Islands. The increasing number of visitors supports a broad range of economic activities that ensure the employment of many residents of the Galapagos in, for example, the hotel, catering, and dive industries as well as on live aboard cruises. These industries and livelihoods would be threatened by the degradation of the islands' natural environments.

In 2013 the Galapagos hosted a total of 204,395 visitors, an increase of 13% (equal to 23,564 visitors) with respect to 2012. This number increased to 224,745 in 2015. Visitors are attracted to the unspoiled natural beauty of the archipelago. Nevertheless, tourism is also the main driver of change, affecting the social and ecological systems. Without proper management, the expansion of the industry as well as the potential shift in the type of visitor may increasingly pose a threat to the natural environment, even though most visitors are attracted to the islands because of its unique nature and habitats.

Galapagos' economy depends heavily on services provided by the marine and terrestrial ecosystems. Industries such as tourism and fisheries rely on healthy and productive coastal waters, oceanic currents, and terrestrial ecosystems. Although the rich biodiversity of the islands is one of their most important assets, the Galapagos undergoes severe environmental pressures caused by coastal development, an increasing tourism industry, and the effects of climate change.

Ecosystem services are defined as "the benefits that people obtain from ecosystems" (Millennium Ecosystem Assessment, 2005). Despite the fact that tourism is highly connected to the condition of the environment, the economic contribution of the unique ecosystems to the tourism industry has never been quantified. This study investigated the correlation between the socioeconomic cost of tourism and the ecosystem services of the Galapagos. Various growth scenarios were also analyzed to create an understanding of sustainable tourism opportunities.



Galapagos Islands, Ecuador © Gabriela Erazo

**INTERNATIONAL VISITORS PAY A CONSIDERABLY HIGHER ENTRANCE FEE THAN ECUADORIANS TO ENTER THE GALAPAGOS NATIONAL PARK**



## The Approach

This study had two goals: 1) to investigate the importance of nature for the tourism industry and find a comprehensive indicator (i.e. a monetary unit) for the value that visitors place on protecting Galapagos' ecosystems; and 2) to compare the costs and benefits of tourism development through three growth scenarios.

An exit survey was conducted among more than four hundred departing visitors to estimate the perceived value they would give to different ecosystem services and recreational activities. Questions included the length of stay, sites visited, activities, and their perception about environmental management and the state of conservation. The socio-economic value of the ecosystem services was calculated using two valuation methods based on preferences evidenced from the responses to the survey. The study then used the values obtained to complement previously existing studies on tourism growth scenarios through a cost-benefit analysis (CBA) that compared three possible situations. This comparison was done by quantifying the potential costs and benefits of tourism in terms of the value of nature in each of the cases.

## Methodology

### Exit survey and willingness to pay



The exit survey investigated the expenditures of visitors visiting the Galapagos, as well as their willingness to pay (WTP) for nature conservation in the islands. The surveys were conducted in the two airports in Baltra and San Cristobal that host flights to and from the mainland. English and Spanish surveys were offered to reach a representative distribution of Ecuadorian and international visitors. Live-aboard and stay-over visitors were separated analytically in the study, since the two types of visitors often fit different profiles and participate in different activities. An analytical division was also made between national and foreign visitors, since non-national visitors pay a considerably higher entrance fee than Ecuadorians to enter the Galapagos National Park.

The study combined two methods, choice experiment (CE) and contingent valuation (CV), as assessment tools to estimate how much people are willing to pay for different aspects of their stay as well as an additional payment for more nature conservation actions. This option was presented as an additional payment to the mandatory National Park entrance fee. The CV method is based on an open question in which people are directly asked what they would be hypothetically willing to pay for ecosystem conservation. In the survey, respondents were asked to specify the maximum amount they would be willing to pay for better environmen-

tal protection, in addition to what they were currently paying. In the CE method, the WTP is derived from people's choices between different scenarios of environmental quality. The scenarios in the CE were constructed with five different attributes: marine species, land species, additional entry fee, number of visitors, and waiting time for booking in advance. The CE method generated a wide range of qualitative insights.

## Cost-benefit analysis of tourism growth scenarios

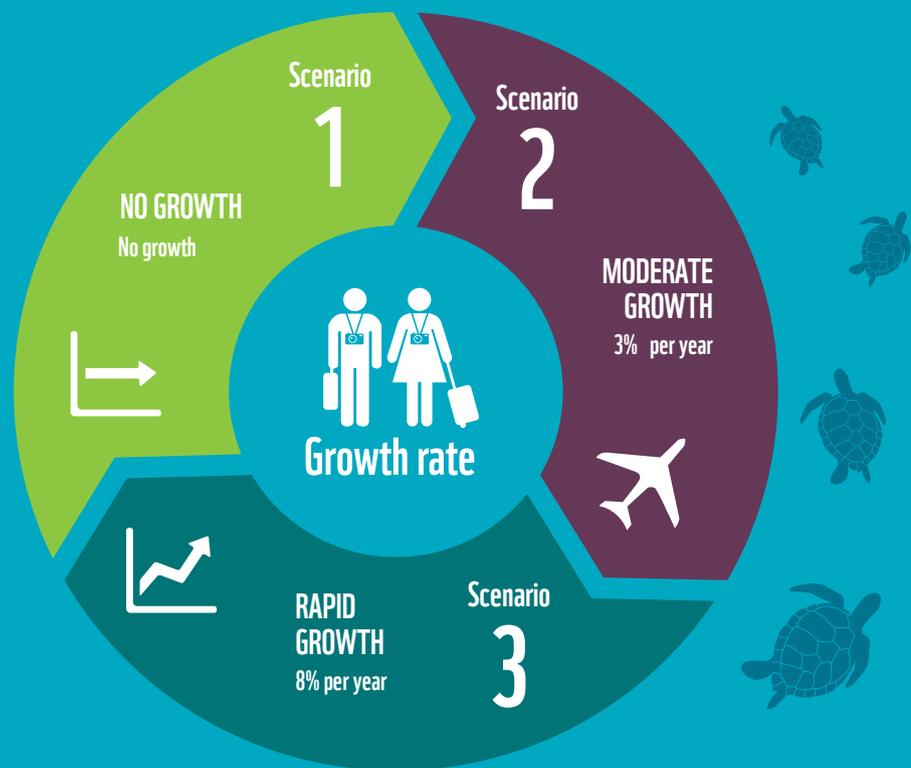


Table 1 tourism growth scenarios

This study builds on work by Mena *et al.* (2013) and Mentefactura (2014), who developed a model to evaluate the effects of tourism growth in the Galapagos. The model discusses tourism's significant ecological and economic effects. The value of nature for tourism in the three-abovementioned scenarios was calculated using information obtained from the tourist survey.

A cost-benefit analysis (CBA) is a tool designed to compare costs and benefits related to a specific decision. The conversion of these effects enabled the formulation of an extended analysis comparing the three tourism growth scenarios shown in Table 1. The effects were determined over a 30-year period.



Blue-footed booby, Galapagos Islands, Ecuador © Carlos Drews / WWF

## Results

The study reveals a significant WTP for additional nature management among visitors to the Galapagos Islands. Although foreign and high-income visitors have a higher WTP, almost all visitors assign considerable values to the Galapagos' ecosystems services and recreational activities in nature. Marine ecosystems are found to be the most valuable, followed by the terrestrial ecosystems. Table 2 shows the estimated total annual willingness to pay for additional nature conservation. The analysis suggests that visitors are willing to pay more than USD 17 million for nature conservation. This amount is additional to the fees currently paid by visitors to enter the Galapagos National Park.

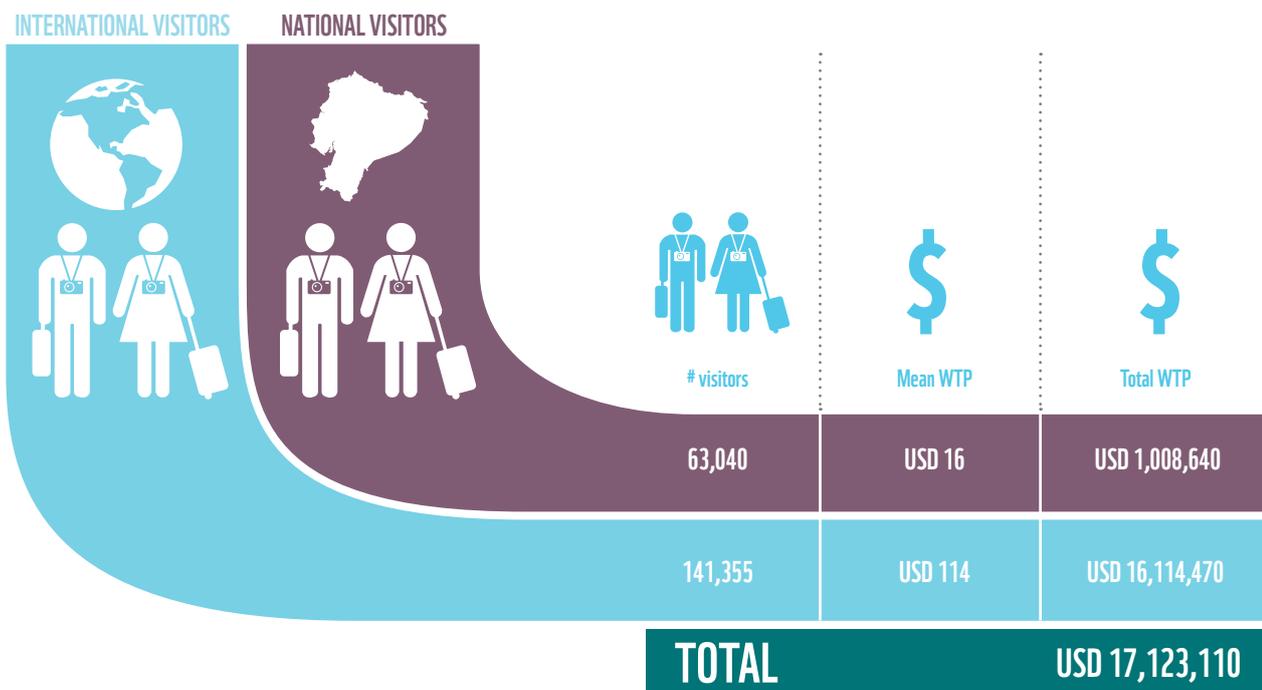
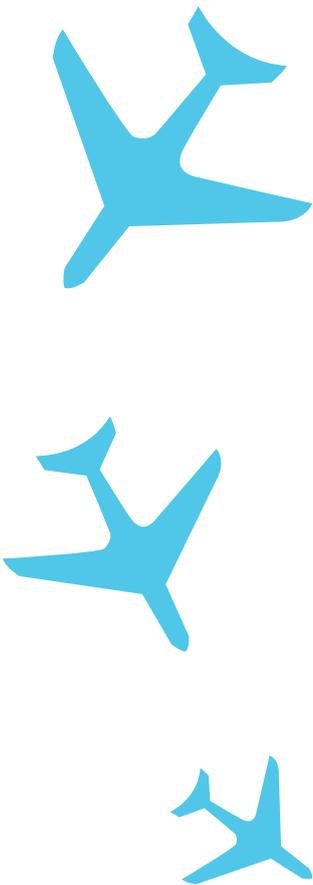


Table 1 WTP for additional nature conservation on the Galapagos based on 2013 visitation numbers. The calculated amounts are on top of the current entrance fee.



Important indicators for the tourism industry's prosperity are whether people enjoyed their stay and plan to come back for a future visit. The desire to return directly relates to the condition and health of the local ecosystems as Figure 2 indicates. The study found that currently almost 60% of visitors want to return and that they would be likely to recommend the Galapagos to their acquaintances. However, the figure also shows that controlling the number of visitors and more infrastructure construction is important, since only 22% of the visitors would plan to return if the islands become more crowded. Worsening environmental conditions would also lead to a lower amount of visitors; less than 10% of the visitors would plan to return, while 67% would absolutely not if faced with unhealthy and degraded ecosystems. These findings have implications for the tourism industry and therefore the prosperity of the archipelago in general.

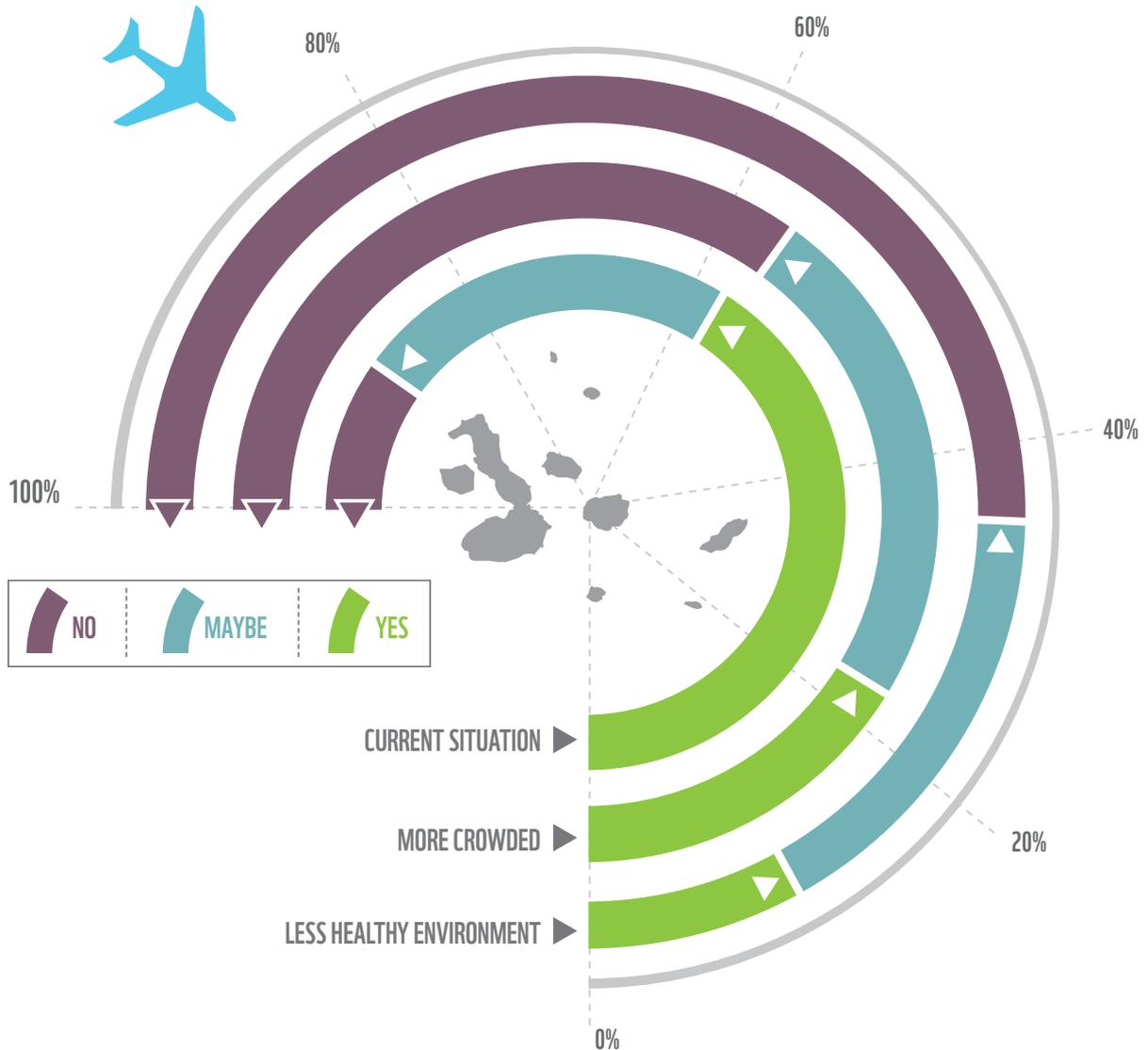


Figure 2 Would you return to the Galapagos if the islands are similar to the current situation; if the islands are more crowded; if the natural environment is less healthy.

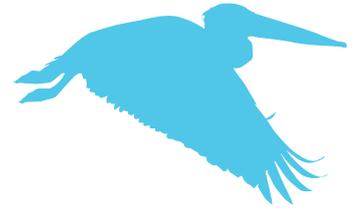


Figure 3 presents the main results of the CBA comparison of the tourism growth scenarios. It shows the quantity of visitors and corresponding net benefits calculated for each situation.

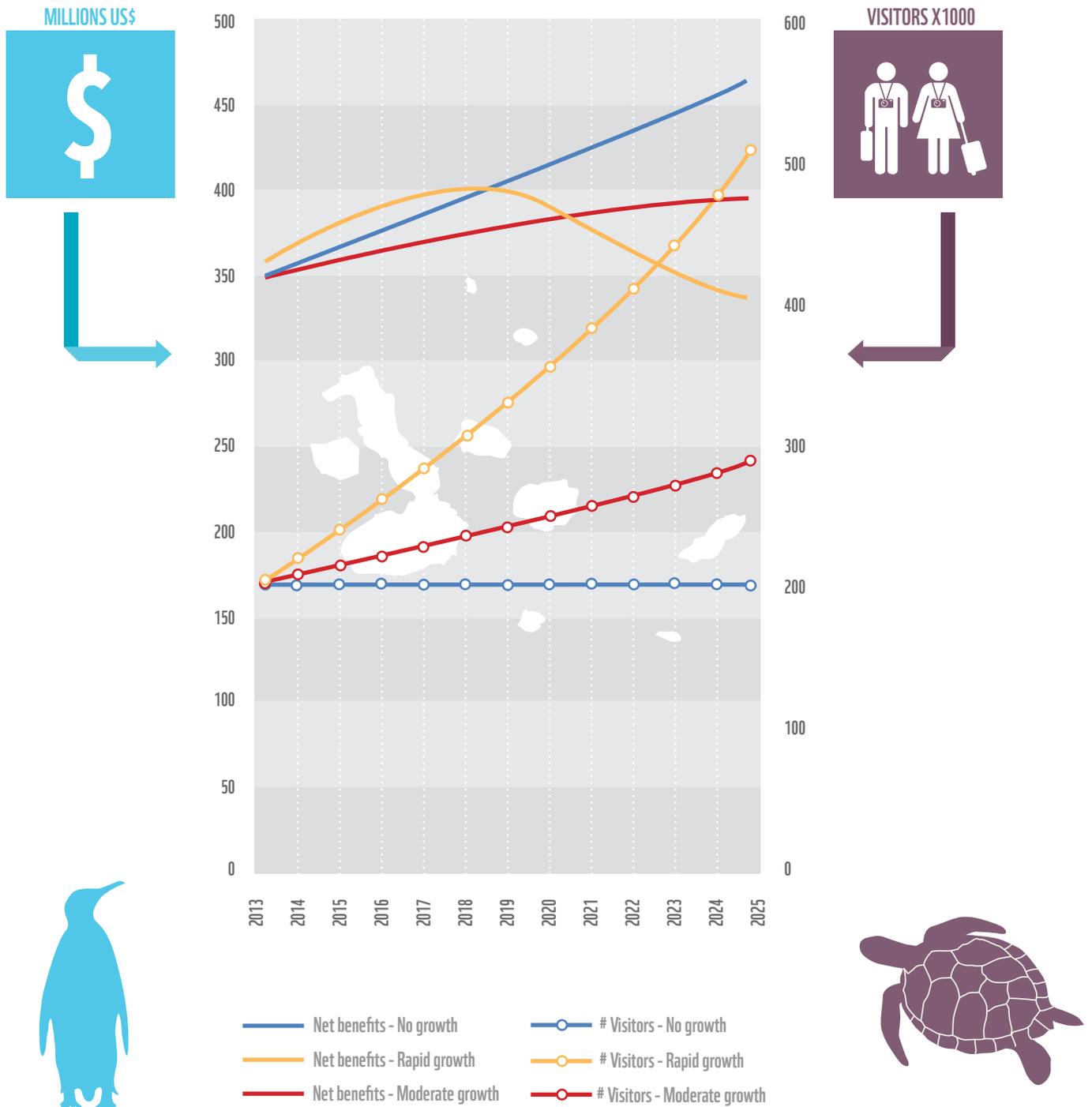


Figure 3 Analysis of three tourism growth scenarios on the Galapagos.



Figure 3 indicates that neither the moderate nor the rapid growth scenarios analyzed represent a viable option for the Galapagos: the moderate growth scenario will not be sustainable in the long term, and the rapid growth scenario will be unsustainable even in the short term. A rapid increase of visitors yields higher values in the first three to seven years of the analysis. However, the increased pressure of the tourism industry on the local environment may cause a collapse after the carrying capacity of the protected area is exceeded and the natural ecosystems are highly degraded.

This would ultimately lead to lower net-benefits because visitors would not be willing to pay to visit the degraded natural beauty of the Galapagos. The no growth scenario is the only one with a continued increase in yearly net benefits. It yields higher profits than the moderate growth scenario in 2016, and from 2020 onwards in comparison to the rapid growth scenario.

Tour with naturalist guide Jocelin, Galapagos Islands, Ecuador © DPNG





Sea lion, Galapagos Islands, Ecuador © DPNG

**CONTROLLED  
TOURISM  
GROWTH  
YIELDS HIGHER  
LONG - TERM  
PROFITS**

## Conclusions

The results of the study indicate the following:

- Current visitors come to experience the natural environment. They are willing to return and spend more than they currently do to enjoy and preserve the ecosystems of the Galapagos.
- Visitors are willing to spend more than USD 17 million on nature management in the Galapagos, in addition to the admission fees they already pay to enter the National Park.
- In the first seven years of the analysis, the economy can benefit from strong growth in the tourism sector. However, these benefits are not likely to last in the long run due to the increased pressure on the islands' ecosystems. As a result thereof, the tourism industry may collapse under an unlimited growth scenario.
- The most beneficial development scenario for the wellbeing of the Galapagos in the long run is a controlled amount of visitors that remains within the carrying capacity of the protected areas.

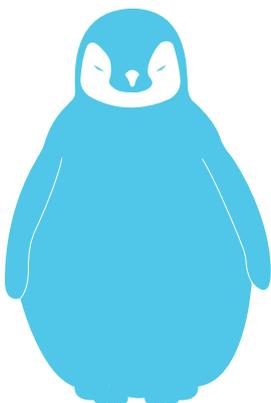
## Recommendations

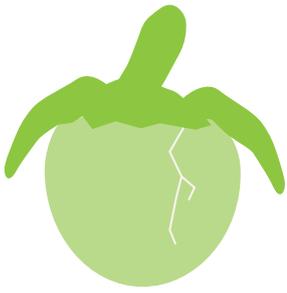
The challenge for decision-makers will be to find the right balance and the appropriate management measures to achieve an ideal number of visitors, who are attracted to the Galapagos Islands, and are willing to pay for a highly valued natural experience. The study arrives at the following recommendations:



Shoal of scalloped hammerhead sharks (*Sphyrna lewini*), Galapagos Islands, Ecuador © naturepl.com / Doug Perrine / WWF

- The only viable tourism development option appears to be a scenario that permits growth in the next years within the limits of the natural environment's carrying capacity. In the meantime, it is important to develop an integral management system to stabilize the number of visitors to an acceptable maximum.
- Uncontrolled rapid tourism growth should be avoided. This is the least profitable scenario due to the risk of a shift to mass tourism, comprised of visitors who are not necessarily interested in nature, who may not be willing to pay for conservation and have lower spending patterns.
- Develop a tourism growth plan that includes limiting the number of visitors considering the Acceptable Visitor Load established by the Galapagos National Park, which is one of the main limiting factors according to visitors willingness to return and pay
  - ▶ The number of stay-over visitors is increasing and there is no management system to control the arrivals of this land based category. It is necessary to control growth by implementing an integrated management system that controls both the number of stay-over and live-aboard visitors that are allowed to visit the Islands.
  - ▶ The existing System of Managing Visitors (SIMAVIS) is a good basis to establish the acceptable load of stay-over visitors that the protected area is capable of receiving. Once such a management system is in place, tourism arrivals could be stabilized at levels where the conservation of the Galapagos' ecosystems, and therefore the benefits derived from the tourism sector, are not at risk.





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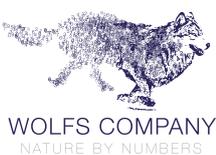


San Bartolome island in Galapagos Islands, Ecuador © Carmen Ana Dereix / WWF-Colombia

Schep, S.W., Reusen, M., Luján Gallegos, V., van Beukering, P., Botzen W. (2014). Does tourism growth on the Galapagos contribute to sustainable development? The tourism value of ecosystems in the Galapagos and a cost-benefit analysis of tourism growth scenarios. Wolfs Company, Bonaire, Instituto de Estudios Ambientales (IVM) de la Universidad VU de Amsterdam, Países Bajos.

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