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Integrating Tourism, Conservation, and Development: Perspectives from International and Domestic Tourists in Península Valdés (Patagonia), Argentina

Stephanie Stefanski, MEd 2014

Abstract

Historically hunted to near extinction, marine mammals are now the focus of international conservation efforts and tourism industries. However, pollution and fishery activity continue to place marine mammals, and the tourism industries that depend on them, at risk of extinction. The study site, Península Valdés, Argentina, is a World Heritage Site designated for its protection of marine mammal populations, including southern right whales (*Eubalaena australis*), southern sea lions (*Otaria flavescens*), and southern elephant seals (*Mirounga leonina*). However, pollution degrades habitat quality and supports an abundant kelp gull population, both of which threaten the viability of the site as a nursery for southern right whales. Pollution and other environmental problems may further detract from the aesthetic qualities that attract thousands of tourists each year to the Peninsula. The present study collected 650 surveys on national and international tourists. Survey responses provide insight into international and domestic visitors' perceptions of environmental threats to the region, demonstrating that conservation is an important part of entrance fees and park management. The results of this study urge the Administration of Península Valdés and onsite tourism operators to dedicate resources towards sustainable operations and improved waste management to ensure the sustainability of tourism and development in the region.

Introduction

Historical overexploitation of marine mammals has led to modern-day challenges to their conservation in the face of growing

conflicts with coastal development and offshore commercial activities. The presence of marine mammals generates economic value through the provisioning of aesthetic, cultural, and recreational benefits derived by a given region or community (Daniel et al. 2012). Although aesthetic and cultural benefits are difficult to quantify, tourism reveals recreational values for marine wildlife.

Tourism inflicts mixed effects on communities, ecosystems, and wildlife. Operations generate vehicle and boat emissions or compete with local communities for limited resources (UNEP and UNWTO 2012:19). On the other hand, tourism offers alternative

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livelihoods. Sustainable development through tourism can be achieved if governments, businesses, and communities work together to ensure inclusive and responsible management of parks and their wildlife. Studies show that tourists are willing to pay more for “ecotourism” destinations with sustainable tourism operations and local community involvement (ibid.:29). Such willingness to pay (WTP) estimates are captured through economic valuation techniques, which then inform park management.

This study collected information on international and domestic visitors’ wildlife viewing and management preferences for Península Valdés, Argentina through such economic valuation survey methodologies. The results demonstrate the need for better resource management to ensure sustainability of development in the region.

Background

The study site, Península Valdés, is 4,000 km² and located in the Chubut Province of Patagonia, Argentina. In 1999, the area was designated as a protected UNESCO World Heritage Site for the conservation of marine mammals, such as southern sea lions (*Otaria flavescens*), elephant seals (*Mirounga leonina*), orcas (*Orcinus orca*), and southern right whales (*Eubalaena australis*). Residents, businesses, and the government are motivated to protect the site in order to sustain the booming tourism industry.

Tourism is a relatively new phenomenon in the Península Valdés region, beginning in the 1980s (Kuper 2009). The economic conditions of Argentina support domestic and international tourism. More than 90,000 domestic visitors entered Península Valdés during the 2013 whale-watching season (AANPPV 2013).

Academic research demonstrates that overfishing, incidental bycatch of marine mammals, tourism activities, and pollution threaten Magellanic penguins (*Spheniscus magellanicus*), dusky dolphins (*Lagenorhynchus obscurus*), and southern right whales (*Eubalaena australis*) in the Patagonian coastal region (Dans et al. 2003, Gandini et al. 2011, Markowitz et al. 2010, Rowntree et al. 1998, Sironi et al. 1998). While fishing activities contribute to direct mortality of marine mammals and birds, pollution generates a more pervasive effect over the environment.

The expanding population in Patagonia and a growing influx of tourists contribute to open-air waste disposal sites. Poor management of waste and fishery discards supplement the overpopulation of kelp gulls (*Larus dominicanus*) (Lisnizer et al. 2011). Since the 1990s, scientists have observed kelp gulls harassing and attacking southern right whales to eat the skin and blubber of these whales, particularly of young calves (Fazio et al. 2012, Thomas 1988, Rowntree et al. 1998) (Figure 1). More recently, scientists are observing an unexplained high mortality rate of southern right whale calves in the Península Valdés region, which reached a ten-year high in 2013 with 113 dead calves (Rowntree et al. 2013). While no single threat could push the population to extinction, entanglement in fishing gear, habitat degradation, and stressors such as gull attacks adversely influence whale survival, placing the viability of the tourism industry and southern right whale population in this region at risk (Fazio et al. 2012).

Although marine mammal populations in the Patagonian coastal region are recovering from historical hunting, the externalities of coastal development may hinder full recovery. As a result, the benefits generated by abundant marine mammal populations to



Figure 1. *Kelp Gull harassing or attacking Southern Right Whale calf. Photo credit: Stephanie Stefanski.*

community and tourism interests should be considered in resource management strategies.

Research Methodology

This study utilized a structured survey to collect information from tourists about socio-demographics, travel behavior, and perceptions about environmental problems. The final survey was distributed from July until October 2013, capturing the high season for whale watching and collecting 656 responses from international and national tourists. Surveys were conducted in Puerto Madryn, the main town for tourist accommodations, and in Puerto Pirámides, the main town for whale watching. The author and four trained research assistants conducted the surveys in English, Spanish, and French.

This study focuses on the final section of

the survey, which addressed environmental threats and, more specifically, the phenomenon of kelp gull attacks on southern right whales. The section first presented a “warm up” question, “What environmental problems have you heard of in this region?” Respondents were then asked their familiarity concerning gull attacks on whales, followed by this statement:

There is evidence that kelp gulls, the most abundant bird in the area, have been attacking whales for food. Recently, government authorities in the province have decided to implement management actions to mitigate gull attacks on the whales.

Tourists were asked if they would pay an additional charge alongside the entrance fee for a general plan to “reduce the kelp gull

population.” This starting value was randomly assigned from five Argentinian peso (ARS) amounts [15, 25, 55, 75, 100].¹ Respondents were then asked how much they would pay for Management Plan A, which would improve local waste management in order to eliminate this source of gull alimentionation. Supposing Management Plan A were not sufficient, respondents were then asked how much they would pay for Management Plan B. Plan B proposed reducing the gull population by shooting “attacker gulls,” kelp gulls that have been observed specifically targeting whales as a food source (Fazio et al. 2012).

I used a proportion test to determine if the proportion of respondents who identified a certain problem was significantly different between the two groups (domestic and international visitors), using the prop.test()

function in R 3.1.1 (R Core Team 2014). Values visitors were willing to pay were compared using a t test.

Results and Discussion

Environmental Problems

International and domestic tourists gave similar responses concerning perceived environmental threats to the Patagonian coastal region. In total, respondents listed one or more of eleven thematic problems (Figure 2). The most frequently cited problems were kelp gulls (13.87%), pollution (10.37%), and garbage (16.46%). These problems are related, given that unmanaged garbage has led to the overpopulation of gulls. Pollution was either tied to the presence of garbage or to the presence of factories, such as Aluar, an aluminum mining company located on the

Figure 2. *Perceived environmental problems in coastal Patagonia, international & domestic tourists*

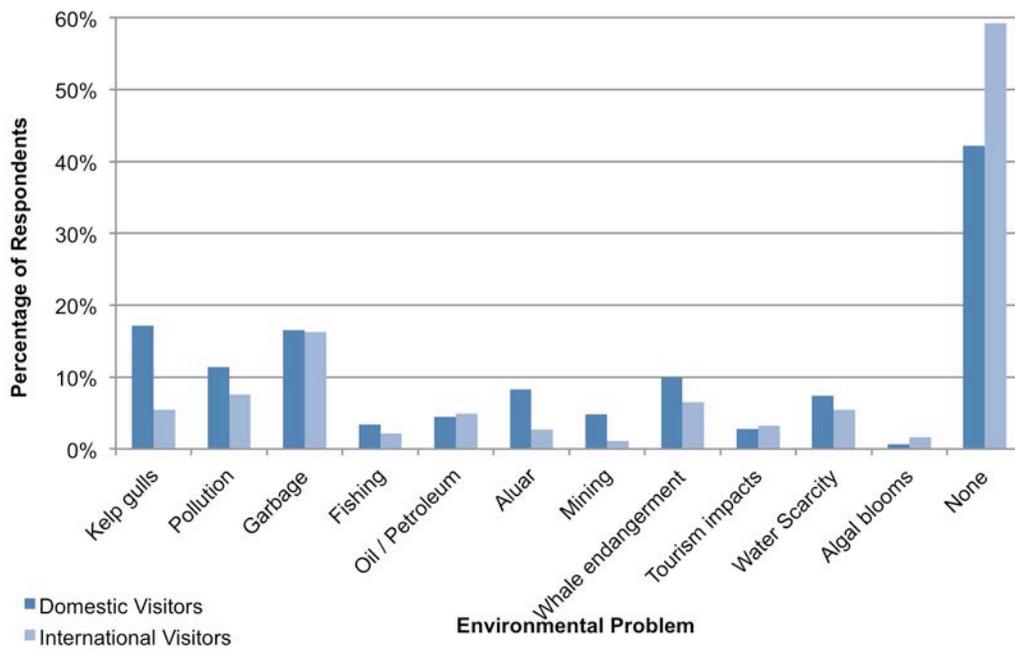


Table 1. *Perceived environmental problems in domestic versus international visitors*

Environmental problem	Domestic Visitors (N = 472, 72%)		International Visitors (N = 184, 28%)		Chi square value	Degrees of freedom	p
	N	Proportion	N	Proportion			
Kelp gull	81	0.17	10	0.05	14.271	1	0.0002
Pollution	54	0.11	14	0.08	1.7	1	0.1923
Garbage	78	0.17	30	0.16	0	1	1
Fishing	16	0.03	4	0.02	0.315	1	0.5748
Oil / petroleum	21	0.04	9	0.05	0.001	1	0.9717
Aluar	39	0.08	5	0.03	5.65	1	0.0175
Mining	23	0.05	2	0.01	4.195	1	0.0405
Whale endangerment	47	0.10	12	0.07	1.513	1	0.2187
Tourism impacts	13	0.03	6	0.03	0.008	1	0.9295
Water Scarcity	35	0.07	10	0.05	0.532	1	0.4656
Algal blooms	3	0.01	3	0.02	0.556	1	0.4557
None	199	0.42	109	0.59	14.825	1	0.0001

Table 2. *Management plan mean WTP estimates in domestic versus international visitors*

Management Plan	Domestic Visitors (N = 472, 72%)		International Visitors (N = 184, 28%)		t	p
	\bar{X}	s.e.	\bar{X}	s.e.		
General WTP (ARS \$)	33.79	1.59	32.95	2.68	-0.28	0.78
WTP Plan A (ARS \$)	37.05	2.73	36.51	2.69	-0.14	0.89
WTP Plan B (ARS \$)	18.91	2.87	10.74	1.80	-2.42	0.02

highway between Puerto Madryn and Puerto Pirámides.

Table 1 shows the results of a chi-square test to determine if the proportion of respondents who identified a certain environmental problem was significantly different between domestic and international visitors. In general, responses were not statistically different. Significantly more domestic tourists stated that the kelp gulls (17%), Aluar (8%), and mining (5%) were environmental problems, while significantly more international tourists (59%) did not perceive environmental problems.

Perceptions of environmental problems often depend on individual experiences on-site. While local museums and tour guides present information on the adverse impacts of overfishing and pollution, it appears that

most tourists are not well informed about environmental threats to the region.

In general, domestic visitors seemed more perceptive of regional environmental problems (mining, oil and gas extraction and transportation, and water scarcity) than international visitors (Figure 2). While this may reflect the strong effort undertaken by the Administration of Península Valdés each year to maintain the park and local surroundings, the high occurrence of “kelp gulls,” “pollution,” and “garbage” as stated problems suggests that these threats are the most visible and affect overall perception of the region. The highway connecting Puerto Madryn to the entrance of the protected Península Valdés area not only hosts Aluar, but also features dump sites for municipal waste and fishery processing plants (Figure 3).



Figure 3. *Open-air disposal waste sites and gulls off of the route between Puerto Madryn and Puerto Piramides. Photo Credit: Stephanie Stefanski*

Willingness to Pay

The average respondent was only somewhat familiar with gull attacks on whales (a score of 2.5/5, with 5 being “Very familiar” and 1 being “Not familiar at all”), but still willing to pay an additional entrance fee to manage the population. However, many expressed reservations about how the additional fee would be used, citing concerns about corruption and the current allocation of entrance fees. These concerns seem linked to a lack of familiarity with local politics and administration of funds, which could be made clearer through educational pamphlets and advisories about how entrance fees contribute to the maintenance of the park.

For the general plan, WTP was not significantly different between domestic and international tourists, generating a combined mean WTP of \$33.55 ARS (US\$ 5.87). In addition, WTP for Plan A was also not significantly different at the 90% level between the two groups, although the average value

was slightly lower for international visitors, \$36.51 ARS (US\$ 6.46) (Table 2). Responses were significantly different between the two groups for Management Plan B. On average, domestic tourists were willing to pay an additional fee of \$18.91 ARS (US\$ 3.30) while international tourists only stated a WTP of \$10.74 ARS (US\$ 1.88). Nonetheless, these values are much lower than those given for the general plan or Plan A.

Although all WTP estimates seem low, they need to be accounted for within the context of current entrance fees. Entrance fees to Península Valdés are higher for international visitors than for national visitors. At the time of the survey (June – October 2013), Argentine tourists were charged \$40 ARS (~US\$7.00) and international tourists were charged \$135 ARS (~US\$ 23).

Furthermore, respondents traveling with family stated that they would be unable to visit the park if the entrance fees were significantly increased. As a result, the average

WTP for the general plan and Plan A represent a percentage increase in the entrance fee of 84% and 92% for domestic visitors and 25% and 27% for international visitors, respectively. While domestic tourists were willing to increase the entrance fee by 47% for Plan B, international tourists would only pay an additional 12% increase.

It is clear that the WTP values for these plans are significant. Domestic visitors would almost double the current entrance fee if the additional revenue were devoted to improved waste management and, as a result, improved management of the kelp gull population. Although international tourists were not willing to significantly increase the entrance fee (many stated that the current fee was already too high), they were still willing to contribute a small amount towards improved waste management.

The WTP question presented three management plans, each addressing the most commonly cited environmental problems (pollution, garbage, gulls). Based on the responses, it is pertinent for the Administration of Península Valdés and for city authorities to work together towards resolving these issues. By managing local pollution and the gull population, both domestic and international perceptions of the region would improve. Such quality improvements could justify higher entrance fees, enhancing the welfare for the region, revenue flow of the park, and long-term viability of the wildlife and natural aesthetics.

Conclusion

Administrators and tourism operators are supportive of improved waste management and more sustainable tourism operations in light of these growing threats to the region and their economic livelihoods. The results of this study demonstrate external

perceptions and pressures that may spur action to ensure sustainable business and waste management. Tourists' willingness to pay for additional entrance fees, in exchange for conservation of the site's wildlife and aesthetic qualities, can be incorporated into a cost-benefit analysis to estimate the potential net benefits of financing sustainable tourism, waste management, and wildlife management.

Tourism can support conservation and development. International and national visitors to Península Valdés are aware of environmental issues threatening its sustainability. International destinations can serve as a financing mechanism for conservation through responsible use of entrance fees and integrated management of coastal activities. While tourism can have negative effects on communities and ecosystems, these impacts can be mitigated through partnerships with local government and park administrators. For example, the report on *Tourism in a Green Economy* demonstrates that waste management and sustainable business operations have improved financial returns for the private sector, led to job creation, and contributed to overall aesthetics (UNEP and UNWTO 2012).

The results of this study demonstrate the importance tourists place on the protection of the ecosystem and wildlife found within "ecotourism" destinations, and their willingness to pay to ensure its long-term conservation. Economic valuation studies can inform park management and justify increased entrance fees as a means for conservation financing. The results of this study will provide a new set of knowledge for resource managers and policymakers. Park management should find ways to incentivize tourism operators and business owners to implement more sustainable business practices and ensure the long-term viability of the site and

the livelihoods of the communities living within and adjacent to its borders.

Endnote

1. \$1 ARS is equal to approximately US\$5.62 (July – October 2013)

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References

- AANPPV (Administración Área Natural Protegida Península Valdés). 2013. Más de 5 mil visitantes disfrutaron de la Península Valdés durante el fin de semana largo [WWW Document]. URL http://aanppv_nueva.peninsulavaldes.org.ar/?p=979
- Daniel, T.C., A. Muhar, A. Arnberger, O. Aznar, J.W. Boyd K.M. Chan, R. Costanza, T. Elmqvist, C.G. Flint, P.H. Gobster, A. Grêt-Regamey, R. Lave, S. Muhar, M. Penker, R.G. Ribe, T. Schauppenlehner, T. Sikor, I. Soloviy, M. Spierenburg, K. Taczanowska, J. Tam, A. von der Dunk. 2012. Contributions of cultural services to the ecosystem services agenda. *Proc. Natl. Acad. Sci. U. S. A.* 109: 8812–8819.
- Dans, S.L., M.K. Alonso, E.A. Crespo, S.N. Pedraza, N.A. García. 2003. Interactions between marine mammals and high seas fisheries in Patagonia: an integrated approach, in: Gales, N., Hindell, M., Kirkwood, R. (Eds.), *Marine Mammals: Fisheries, Tourism and Management Issues*. CSIRO, Collingwood VIC, pp. 88–103.
- Fazio, A., M. Bertellotti, C. Villanueva. 2012. Kelp gulls attack Southern right whales: a conservation concern? *Mar. Biol.* 159 (9): 1981 – 1990.
- Gandini, P.A., E. Frere, A.D. Pettovello, P.V. Cedrola. 2011. Interaction between Madellanic Penguins and Shrimp Fisheries in Patagonia, Argentina. *Condor* 101: 783–789.
- Kuper, D., 2009. Turismo y preservación ambiental: el desarrollo turístico de Península Valdés, Provincia del Chubut. *PASOS* 7: 85–97.
- Lisnizer, N., P. Garcia-Borboroglu, P. Yorio. 2011. Spatial and temporal variation in population trends of Kelp Gulls in northern Patagonia, Argentina. *Emu* 111: 259.
- Markowitz, T.M., S.L. Dans, E.A. Crespo, D.J. Lundquist, N.M.T. Duprey. 2010. Human Interactions with Dusky Dolphins: Harvest, Fisheries, Habitat Alteration, and Tourism. In B. Wursig & M. Wursig, Eds. *The Dusky Dolphin: Master Acrobat Off Different Shores*. New York: Elsevier Ltd, pp. 211–244.
- Rowntree, V.J., M.M. Uhart, M. Sironi, A. Chirife, M. Di Martino, L. La Sala, L. Musmeci, N. Mohamed, J. Andrejuk, D. McAloose, J.E. Sala, A. Carribero, H. Rally, M. Franco, F.R. Adler, R.L. Brownell Jr., J. Seger, T. Rowles. 2013. Unexplained recurring high mortality of southern right whale *Eubalaena australis* calves at Península Valdés, Argentina. *Marine Ecology Progress Series* 493: 275–289.
- R Core Team. 2014. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <http://www.R-project.org/>
- Rowntree, V.J., P. McGuinness, K. Marshall, R. Payne, M. Sironi. 1998. Increased Harassment of Right Whales (*Eubalaena australis*)

by Kelp Gulls (*Larus dominicanus*) at Península Valdés, Argentina. *Mar. Mammal Sci.* 14: 99–115.

Sironi, M., V.J. Rowntree, C.T. Snowdon, L. Valenzuela, and C. Marón. 1998. Kelp gulls (*Larus dominicanus*) feeding on southern right whales (*Eubalaena australis*) at Península Valdés, Argentina: updated estimates and conservation implications. *J. Cetacean Res. Manage.* 1–12. Available at [http://www.icb.org.ar/descargas/Kelp%20gulls%20\(Larus%20dominicanus\)%20feeding%20on%20southern%20right.pdf](http://www.icb.org.ar/descargas/Kelp%20gulls%20(Larus%20dominicanus)%20feeding%20on%20southern%20right.pdf)

Thomas, P. 1988. Kelp Gulls, *L. dominicanus*, are parasites on flesh of the southern right whale, *E. australis*. *Ethology* 79:89–103.

UNEP (United Nations Environmental Program) and UNWTO (World Tourism Organization). 2012. *Tourism in the Green Economy - Background Report*. World Tourism Organization: Madrid, Spain.