

Research Note

Keiko, Shamu and Friends: Educating Visitors to Marine Parks and Aquaria?

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Introduction

Marine parks are big business. The Vancouver Aquarium, for example, indicated total revenues of almost \$CND 15 million in 2002 (ca. \$US 11.2 million) (Vancouver Aquarium and Marine Science Centre, 2002), and the theme parks of Anheuser Busch (including Sea World in San Diego, San Antonio, and Orlando, Discovery Cove in Orlando, Busch Gardens in Tampa Bay and Williamsburg, as well as Water Country USA, Sesame Place, and Adventure Island) generated revenue of \$US 1.1 billion in 2005 (Anheuser Busch, 2006). The primary visitor magnets of these parks are often marine mammals, such as dolphins, orcas (*Orcinus orca*), beluga whales (*Delphinapterus leucas*) and various species of pinnipeds (e.g. sea lions and seals). In particular, highly choreographed shows with marine mammals and petting pools are the centre of visitors' attention (Schwab, 1995). Killer whales are most popular among visitors, and it is indeed not uncommon that more than 500 visitors attend each of the several daily shows at marine parks (Wright & Kelsey, 1990). However, keeping cetaceans, especially large species such as orcas and beluga whales, in captivity for the purpose of entertainment is highly contentious. One argument for keeping marine mammals in captivity is that marine parks contribute to education, and thus ultimately to the conservation of marine mammals (Alliance of Marine Mammal Parks and Aquariums, 1999). This has been observed by Whitehead (1990: 60) who states that 'many people are thrilled, excited and fascinated to see captive whales performing. Knowledge is a key to action. If we are to preserve the whales and their environment, people, and perhaps most importantly children, must be able to experience them. Oceanaria are one way people can see whales.'

Education at Marine Parks

Education on tours with wild marine mammals has been investigated, most notably on dolphin and whale watch tours in Australia by Orams (1993, 1994, 1995, 1996a, 1996b, 2000), but also on whale watch tours in Australia by Muloin

(1998) and on dolphin tours in New Zealand (Lück, 2003). However, there appears to be a lack of evidence on the educational value of keeping marine mammals in captivity. Whale and dolphin watch tours are certainly not directly comparable to facilities that hold marine mammals in captivity. The totally different setting provides visitors with very different experiences. In terms of interpretation, the main difference is that whale watch tours have a relatively captive audience, while marine parks have a non-captive audience (Hammit, 1984). It is generally easier to provide educational content to a captive audience, such as tourists on whale-watching boats, than it is to a non-captive audience. In addition, many participants on marine mammal tours in the wild desire education as one of the main components of the tour (Lück, 2003), while for visitors to marine parks, entertainment is the prevalent motivation (Wright & Kelsey, 1990).

Some attention has been paid to education of visitors to aquaria (Evans, 1997; Falk & Adelman, 2003). Aquaria commonly display smaller species of fish and other marine and amphibian wildlife. Because of the possibility to display smaller species in relatively larger tanks, controversy about the ethics of keeping marine animals in captivity is much lower. The Alliance of Marine Mammal Parks and Aquariums (1999) notes that marine wildlife parks and aquaria play an important role in conservation through education. They quote a Roper Poll of 1995, where 92% of respondents agreed that 'these facilities are essential in teaching the public about marine mammals they might not otherwise get the opportunity to learn about' (Alliance of Marine Mammal Parks and Aquariums, 1999: 17). There are, however, a number of opponents to such facilities who argue that often education is just an exercise in public relations (Williams, 2001). According to critics, little is taught about natural behaviours, ecology, demographics or population distribution at marine parks and oceanaria (Rose & Farinato, 1995). Also, there is no independent follow-up, which investigates how much marine park visitors have learned (Hoyt, 1992). Opponents claim that the information provided by marine parks is at times even false, and that marine wildlife in captivity portray a picture of 'trainers riding, kissing, hugging, patting and flying off the heads of orcas' (Williams, 2001: 50). Rose and Farinato (1995: 38) argue that there is a clear purpose for this distortion of information: 'The more understanding people have of the natural history and ecology of marine mammals, the more likely they are to question why marine mammals are held in captivity.' Interestingly, in an awareness study undertaken in Canada by Jiang (2004a), respondents indicated that 'to learn about the natural history of the marine wildlife on display', 'educational opportunities' and 'information on conserving the natural environment', were much more important reasons to visit an aquarium or marine park than factors such as 'petting dolphins or whales', 'feeding dolphins or whales', or 'facilities of the aquarium or marine park'. The most important attraction was the display of marine mammals and fish, and the third most important factor for visitation was the performances and shows of dolphins and whales (Table 1).

Jiang's (2004a) study indicates that visitors to marine parks and aquaria show high interest in educational opportunities during their visit. However, there is a gap in knowledge regarding whether visitors have learned during their stay at the facility, or how satisfied they were with their visit, and with the educational opportunities. Most marine parks are aware of campaigns by environmental protection

Table 1 Reasons for visitation of aquaria and marine parks

<i>Item</i>	<i>Mean</i>	<i>Std. Deviation</i>
Display of marine mammals and fish	3.95	1.10
Educational opportunities	3.94	1.09
Performances/shows of dolphins and whales	3.86	1.23
To learn about the natural history of the marine wildlife on display	3.82	1.17
Information on conserving the natural environment	3.81	1.11
Facilities of the aquarium or marine park	3.56	1.09
Petting dolphins and whales	3.03	1.25
Feeding dolphins and whales	3.00	1.30

Rated on a 5-point Likert scale, from 1 = very unimportant to 5 = very important.
Source: Jiang (2004a).

organisations. Worried about negative publicity, they generally do not let researchers investigate their customers on their premises. Thus, it is difficult to undertake an independent study, asking visitors of the respective parks.

With the foregoing in mind, the purpose of this study is to investigate all marine parks keeping orcas for entertainment with regards to their educational programs. Orcas were chosen, because they are the largest marine mammals held in captivity, and thus are the prime focus of the debate around marine mammals in captivity.

Methods

This paper presents a preliminary study which was undertaken in order to prepare a main project on education at marine parks and aquaria displaying marine mammals. For this project, all marine parks keeping and displaying orcas (*Orcinus orca*) were identified (13 parks worldwide at time of analysis, now twelve parks, see Table 2). Up-to-date information on the exact numbers of orcas in captivity is difficult to obtain, because of animal deaths, new captures, and transfers between parks. However, some conservation organisations, such as the Whale and Dolphin Conservation Society in the UK, keep track of orcas in captivity (Williams, 2001). In addition, marine mammal researcher Erich Hoyt was consulted for help with up-to-date information. Lastly, private conservationists, for example, Stefan Jacobs, keep track of the developments in marine parks, and publish information on their personal webpages (Jacobs, 2006). Table 2 had to be updated several times during the process of writing and revision of this article. It displays the numbers identified from a variety of sources as of January 2006, however, the results of the content analysis are as of 2004. The content of the marine parks in Japan was analysed with the help of a Japanese speaking colleague.

A content analysis of the parks' webpages, and other sources, such as articles in academic journals and newspapers, reports, and books lead to a broad

Table 2 Marine parks and aquaria holding orcas

<i>Marine park/aquarium</i>	<i>Number of orcas</i>	<i>Marine park/aquarium</i>	<i>Number of orcas</i>
Miami Seaquarium, USA	1	Port of Nagoya Public Aquarium, Nagoya, Japan	1
SeaWorld Orlando, USA	10	Kamogawa Sea World, Chiba, Japan	6
SeaWorld San Diego, USA	7	Izu-Mito Sea Paradise, Numazu, Japan	1
SeaWorld San Antonio, USA	8	Taiji Whale Museum, Wakayama, Japan	1
Six Flags Marine World, Vallejo, California, USA	1		
Marineland Niagara Falls, Canada	3		
Acuario Mundo Marino Buenos Aires, Argentina	1		
Marineland Antibes, France	5		
Subtotal 'Western Parks'	36	Subtotal (Japan)	9
		Total worldwide	45

Source: (easyJet, 2001; Jacobs, 2004; Jiang, 2004b; OrcaInfo, 1999; Williams, 1996, 2001).

overview of what these parks offer. Babbie (1995) points out that content analysis can either code the manifest or the latent content of the investigated material. Manifest content is the visible, tangible content of the surveyed objects. Latent content, in contrast, investigates the underlying meaning (Babbie, 1995). Veal (1997) distinguishes between content analysis and hermeneutics, where content analysis focuses primarily on quantitative data, and hermeneutics on qualitative. The present study focuses solely on the manifest content of the respective webpages and additional material. The underlying messages and meanings of this content are planned to be investigated as part of a larger project at a later stage.

The material analysed yielded a large number of items related to a variety of topics. A number of items addressed the same or similar content, and thus the collected information was divided into subgroups, including 'visitor information', 'education', 'shows', 'exhibitions', 'entertainment', 'animal connection', 'kid's clubs', 'media information', 'tour operator information', 'events' and 'other information'. In a first step of the larger project, emphasis was placed on educational issues related to marine parks, and thus only the categories 'education' and 'animal connection' will be examined in this Research Note. The category 'education' comprised of items directly related to interpretation and education at the respective marine park, while 'animal connection' included activities and

opportunities for direct interaction with animals in the 13 parks. The other categories did not contain educational material, but information on the parks, the exhibits and similar content.

A limitation of the study is that the parks might not publish all their educational efforts on their webpages and brochures, although it can be expected that in the light of much pressure from conservation groups, the parks would be interested in making their education programs and material as visible as possible.

Results and Discussion

As of 2004, there were 13 parks holding orcas worldwide (today 12). Some parks, such as the Vancouver Aquarium and the Ocean Park in Hong Kong have recently decided to discontinue their orca programmes. Six Flags shut down their animal programme at the Ohio park, and transferred the orcas to their park in California (Geauga Lake Family Amusement Park, 2004). Thus, these three parks were not included in the study. It is not clear why these three parks decided to abandon their orca programs; however, pressure from conservation organisations and from the general public is assumed to have played a role in this. At the time of the content analysis, Nanki Shirahama Adventure World in Japan still kept orcas and has thus been included in the analysis. Eight out of the 13 aquaria and marine parks are located in the Western Hemisphere, including North and South America, and Europe (these parks will be referred to as 'Western Parks' in this paper), and five are located in Asia. Interestingly, all remaining Asian marine parks displaying orcas are located in Japan. The number of orcas held in the parks varies from one to nine mammals, with a total of 49 orcas held in marine parks worldwide (today 45; Table 2).

Marineland Niagara Falls, Six Flags Vallejo, Kamogawa SeaWorld, and Izu Mito Sea Paradise offer orca petting opportunities (Figure 1). Miami Seaquarium, SeaWorld San Antonio, Marineland Niagara Falls, Acuario Mundo Marino and Kamogawa SeaWorld offer feeding opportunities, and all parks, except Acuario Mundo Marino, Marineland Antibes and the Taiji Whale Museum offer photo opportunities with orcas. At SeaWorld in San Diego and in Orlando, visitors have the unique opportunity to have a look behind the scenes of the park, when participating in a 'trainer for a day' programme. In addition, SeaWorld Orlando offers a 'keeper experience'.

All marine parks offer a variety of educational components (Table 3). A number of marine parks offer camps and special programmes for various target groups. Camps, for example, include day, overnight and scout camps. These are mostly for children under the age of 12, families and teachers. The purpose of such camps is to educate children, parents and teachers about the wildlife and attractions the aquaria have to offer (SeaWorld Orlando, 2004a). Scout programmes are specifically designed for Boy Scouts and Girl Guides, where 'scouts will learn about animals and the environment in a fun, interactive and educational manner. All programs are designed to meet handbook requirements and help scouts earn awards and achievements' (SeaWorld Orlando, 2004b). It is interesting to note that all North American marine parks (SeaWorld in San Diego, Orlando, and San Antonio, Miami Seaquarium, Six Flags Vallejo, and Marineland Niagara Falls) offer some sort of camp experience, while none of the marine parks in South America, Europe and Japan do.



Figure 1 Petting Orcas at Marineland, Niagara Falls, Canada
Source: Michael Lück.

Six aquariums and marine parks offer lectures and/or seminars to visitors for the purpose of educating them about the parks, the animals and environmental issues (SeaWorld Orlando, Six Flags Vallejo, Marineland Antibes, Port of Nagoya Public Aquarium, Nanki Shirahama Adventure World and Izu Mito Sea Paradise). Most marine parks and aquaria provide a variety of educational material, either on their webpages or by mail order. Marineland Niagara Falls and Kamogawa SeaWorld offer information on animal caregivers, including tasks of trainers, training schedules, feeding, and animal care (Kamogawa SeaWorld, 2004; Marineland Niagara Falls, 2004a). Conservation information on marine wildlife and the environment is provided by the three American SeaWorld parks, Marineland Niagara Falls and Marineland Antibes. In addition, the webpages of the three US SeaWorld parks, Six Flags Vallejo, Marineland in Niagara Falls and Antibes and the Taiji Whale Museum offer learning opportunities about marine mammals on their respective webpages (Marineland Antibes, 2004; Marineland Niagara Falls, 2004b; SeaWorld Orlando, 2004a; SeaWorld San Antonio, 2004; SeaWorld San Diego, 2004; Six

Table 3 Animal connection and education at marine parks, oceanaria and aquaria holding orcas

	Miami Seaquarium	Sea World Orlando	Sea World San Diego	Sea World San Antonio	Six Flags Vallejo California	Marine-land Niagara Falls	Actuario Mundo Marino	Marine-land Antibes	Port of Nagoya Public Aquarium	Kamogawa Sea World	Nanki Shirahama Adventure World	Taiji Whale Museum	Izu Mito Sea Paradise
Orca petting						✓				✓			✓
Orca feeding	✓			✓		✓	✓			✓			✓
Photos with orcas	✓	✓	✓	✓	✓	✓			✓	✓	✓		✓
Trainer/keeper experience		✓	✓										
Camps	✓	✓	✓	✓	✓	✓							
Boy & girl scout camp	✓	✓			✓								
Adventure	✓	✓	✓	✓									
Animal interaction				✓	✓				✓		✓		
For teachers	✓	✓	✓	✓		✓							
For kids	✓	✓	✓	✓	✓			✓					
Lectures/seminars		✓			✓			✓	✓		✓		✓
Care/caregivers						✓					✓		

(Continued)

Table 3 Continued

	Miami Seaquarium	Sea World Orlando	Sea World San Diego	Sea World San Antonio	Six Flags Vallejo California	Marine-Land Niagara Falls	Acuario Mundo Marino	Marine-land Antibes	Port of Nagoya Public Aquarium	Kamogawa Sea World	Nanki Shira-hama Adventure World	Taiji Whale Museum	Izu Mito Sea Paradise
Conservation information	✓	✓	✓	✓		✓		✓					
Careers with animals	✓	✓	✓	✓									
Education resources for sale	✓				✓			✓					
Whaling history												✓	
Information on whaling									✓			✓	
Glossary													
Online animal information	✓		✓	✓	✓	✓		✓				✓	
Online quizzes								✓					
Document downloads					✓		✓						
Research laboratory							✓	✓	✓				✓

Table 4 Educational aspects of Western marine parks vs. Japanese marine parks

	<i>Western marine parks and aquaria (n = 8)</i>	<i>Japanese marine parks and aquaria (n = 5)</i>
Educational mission statement	1	0
Camps/special programmes	6	0
Lectures/seminars	3	4
Conservational issues	5	1
Information on commercial whaling	0	2
Animal information on webpage, glossary, online quizzes	5	1
Educational material for sale and/or download	5	0
Information on careers	4	0

Flags Marine World, 2004; Taiji Whale Museum, 2004). In addition to online information, SeaWorld Orlando, Six Flags Vallejo and Marineland Antibes sell educational material online, for example, books, videos, posters, teacher guides and school supplies. The three American SeaWorld parks, Seaquarium Miami and Marineland Niagara Falls also offer information on careers with marine mammals in their respective parks. The Taiji Whale Museum and the Port of Nagoya Public Aquarium provide information on commercial whaling, and on tools, boats and equipment used for whaling (Port of Nagoya Aquarium, 2004; Taiji Whale Museum, 2004). When comparing the parks by location, it becomes clear that the Western parks tend to have a clearer focus on education (Table 4).

While Western parks developed a much more practical approach to education, for example through camps and special programmes for children and educators, Japanese parks focus more on theoretical education through lectures and seminars. In addition, educational materials are more comprehensive, and easier to obtain at the Western parks. For instance, five out of the eight Western parks provide information on conservational issues, while only one out of the five Japanese parks was found to do the same. Williams (2001), suggests that one of the reasons for this is that all remaining Asian marine parks holding orcas are located in Japan, and Japan is still an important capture site. For example, two orcas were captured in Japan in 1997, with one animal sent to the Port of Nagoya Public Aquarium and the other to the Izu-Mito Sea Paradise (Jacobs, 2006). Five out of the eight Western parks offer a link to animal information on their webpage; only one of the Japanese parks offer such a service; in addition, only Western parks provide a glossary and 'online quizzes', while none of the Japanese parks sold educational materials.

Conclusion

Marine parks justify the keeping of orcas, belugas and dolphins in captivity on the basis of education, and conservation through education. However, opponents argue that there is little education to gain at the parks. Jiang's (2004a) study confirmed that the display and performances/shows of marine mammals are one of the main attractions to those parks, but that educational aspects are equally important for visitors. A content analysis of the webpages of the various marine parks and aquaria was conducted in order to gain an understanding of the various educational tools that are offered by these parks. Investigating the depth and quality of the material was not part of this exercise. It was found that a number of parks do offer a variety of educational programmes and material. Leading this effort are the parks of the SeaWorld group in San Diego, Orlando and San Antonio. The most striking finding, however, was that there appears to be a distinct difference between the Western parks, and those in Japan. Generally, the Western parks have a much more focused and professional education system with many hands-on components in place, while the Japanese parks rely more on formal education through lectures and seminars.

Final Note

During the process of writing and revising this Research Note, the orca 'Neocia' at Marineland in Niagara Falls, Canada, died at age 12, on 1 August 2004. Neocia was the fifth whale in as many years to die at Marineland Niagara Falls (Pellegrini, 2004). On 20 October 2004 'Hudson' (6 years old) and on 21 December 2005 'Kandu 7' (21 years old) died at Marineland. Consequently, Marineland is left with only three orcas (Jacobs, 2006). On 29 August 2004, 'Ran' (15 years old), on 18 September 2004, 'Kyu' (7.5 years old), and on 21 January 2005 'Goro' (19 years old) died at Nanki Shirahama Adventure World in Japan. There are currently no orcas left at this park. 'Splash' died at SeaWorld California on 5 April 2004, aged 15.5 years and 'Kim 2' died at Marineland Antibes on 23 November 2005, aged 23 (Jacobs, 2006).

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