

**Close Encounters with Wild Animals:  
Evaluating a New Form of Wildlife Tourism**

by

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## **ABSTRACT:**

Over the last few decades, many tourists have become increasingly interested in close interaction with wild animals: referred to as human-wild animal interaction (HWAI) within this paper. The array of HWAI activities includes: very close approach, feeding, touching, and swimming in the company of wild animals. The focus of my Master's Project is on HWAI tourism involving dolphins and manatees in the United States. As "swim with" tourism grows in popularity, a thorough examination of HWAI tourism is necessary to assess the potential negative impacts of such activities on the target species. This paper is an examination of why interaction with wild dolphins and manatees has become so popular, what effects the interactions could have on the target species, and what policy alternatives could best protect the species.

A variety of factors can motivate people to seek out and value interaction with wild animals, including certain physical and behavioral characteristics, entertainment and film, and species status. Legislation protects dolphins and manatees against harassment, but few studies have examined the direct effects of HWAI on the target species. It is likely that HWAI results in various sub-lethal effects, such as modifications to activity and energy budgets, but we have little direct information regarding the consequences of such behavioral changes. This makes management of the HWAI tourism industry difficult, because enforcing agencies must first demonstrate how a particular action harms a species in order to prosecute.

I recommend a suite of policy alternatives that could help to protect target species based on existing knowledge, including increased educational efforts and changes to the current permitting process and regulatory regime. I conclude by identifying areas where more monitoring and research are necessary.

## INTRODUCTION:

Wildlife has been integral to nature-based tourism in a variety of ways: from so-called “consumptive” practices such as hunting and fishing, to “non-consumptive” activities like bird watching and nature photography. However, over the last twenty to thirty years, many tourists have become increasingly interested in more direct interaction: referred to as human-wild animal interaction within this paper, or HWAI for short. The wide array of HWAI activities includes: very close approach, feeding, touching, and swimming in the company of wild animals. A variety of species around the world have become the focus of HWAI activities. For instance, tourists can swim with whale sharks in Australia, walk amongst colonies of nesting seabirds in Argentina, cage dive amongst great white sharks in South Africa, and visit troupes of endangered gorillas deep in the mountain jungles of Rwanda. The focus of this article will be on the “swim-with” form of HWAI tourism based around dolphins and manatees in the United States.

Tourists can find many opportunities to swim with bottlenose dolphins (*Tursiops truncatus*) through tour operators in the southeastern United States; spinner dolphins (*Stenella longirostris*) in Hawaii are visited by boat-based swim-with tours, and are sometimes close enough to shore that people can gain access to them via a short swim (Spradlin et al., 1999). Independently, or through tour operators, tourists can see and interact with manatees (*Trichechus manatus latirostris*) in their natural over-wintering habitat in southern Florida (USFWS, 2007). The feeding of marine mammals was prohibited by the Marine Mammal Protection Act (MMPA) 56 FR 11693 (1991) in the United States as scientists began to recognize the problems associated with providing food to attract wild animals for viewing and interaction (Samuels & Bejder, 2004). Still, there is little or no other regulation governing the activities associated with swim-

with HWAI tourism in the U.S. though many scientists, managers, and citizens argue they are invasive and disruptive. As this tourism industry grows, a thorough examination of HWAI tourism is necessary to assess the potential negative impacts of such activities. This paper is an examination of why interaction with wild dolphins and manatees has become so popular, what effects the interactions could have on the target species, and what policy alternatives could best protect the species.

### ***History and Motivations of the Desire to Interact with Animals:***

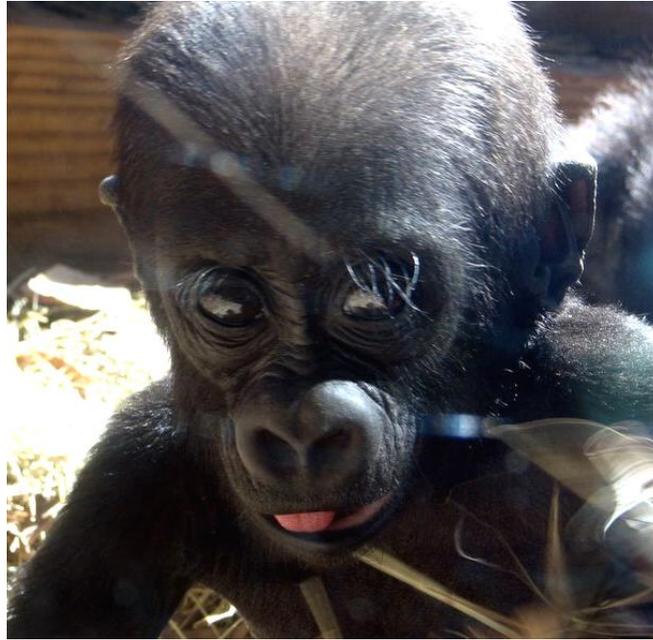
To begin, it is important to investigate the human motivations behind interactions with a particular group of animals – pets – since this area has been the subject of most human-animal interaction research. Humans have associated with other animals for many consumptive purposes – livestock such as chickens and cows, for instance – but pets are more relevant to a discussion of HWAI tourism because people make a choice to associate with them in a non-consumptive manner. With a better understanding of human-pet interaction, we can begin to examine the motivations to interact with wild animals.

Historically, some scientists have argued that a person's choice to own a pet animal is akin to submitting to social parasitism (Archer, 1997), where one species utilizes the behavior of another to receive a benefit. The cuckoo bird exemplifies such a relationship by laying its eggs in other birds nests – other nesting birds exhibit an innate behavior to feed all gaping baby bird mouths in their nest, and consequently, the cuckoo benefits from not having to raise its own young. There are few reliable studies on the human-pet relationship's overall costs to humans, but pet species definitely experience greatly increased fitness through the humans' allocation of resources to benefit them. It is obvious that these species would not be nearly as abundant as

they are today without the food, shelter, and veterinary care dogs and cats receive from their owners.

The social parasite explanation of the human-pet relationship is not widely accepted, however, because the benefits in such a relationship are almost exclusively one-sided. Many scientists (Sanders, 2003; Shiloh, Sorek, & Terkel, 2003) argue that humans receive positive effects from the relationship. They argue that the benefits of human-pet relationships include reducing stress-related mental conditions and alleviating physical illnesses. Some examples of such ailments include: anxiety, loneliness, depression, and high blood pressure. Newsome, Dowling, and Moore (2005) attribute these positive benefits to the animal's filling a human need for companionship. For instance, interaction with pet animals is commonly used as a form of therapy for hospital patients, nursing home patients, and prisoners. It may be impossible to quantify how exactly the human-pet relationship's costs and benefits are balanced, but it does seem apparent that both parties involved receive at least some benefit.

Interestingly, Archer (1997) notes the innate human parental response to human-baby-like facial features – which are termed “social releasers” – could partially explain the development of the human relationship with animals as pets. Another piece of evidence that supports Archer's social-release response hypothesis is that over time, humans have bred dogs and cats in which the adult form resembles infant and juvenile forms. Known as pedomorphosis, these selectively bred species retain characteristics such as: submissiveness; large, low-set eyes; large foreheads; pudgy cheeks; and short, chubby limbs (Archer, 1997). So, because of social releaser characteristics, a person might find a baby gorilla “cute” in the same way they find a kitten or human baby cute (Figure 1).



**FIGURE 1:** A perfect example of social releaser features exhibited by an infant gorilla at the Atlanta Zoo. (Photo by Sarah Harvey)

So, how can we relate human-pet interactions to the less-studied desire to interact closely with wild animals? People do not necessarily want to make pets out of wild animals they find appealing, but it seems logical that Archer's social releasers (1997) might play at least some role in how people select the wild species with which they desire to interact. A part of tourist motivation may be that tourists find a dolphin's big forehead, seemingly playful nature, and "smile" appealing; or they might find the "chubby" face and docile manner of a manatee endearing. Though not all species are appealing in the same way as a human baby, cat, or dog might be, this certainly seems to be a possible motivation for some interaction-based tourism. Newsome, Dowling, and Moore (2005, p.90-92) also note that tourists do seem to seek companionship with animals that exhibit certain physical and behavioral traits: people in general prefer species that are "cute and cuddly" looking, large, and/or exhibit human-like behavior.

Also, in the same way an owner might feel an emotional attachment to their pet, people can develop attachments to wild species (Newsome et al., 2005, p.87-88).

In describing what constitutes an “acceptable pet,” Archer (1997) explains that though some animals do have features that elicit a social-releaser response, they can still be unsuitable household pets for various reasons. He gives the example of Giant Pandas (*Ailuropoda melanoleuca*), which certainly exhibit social releaser features, but are typically not kept as pets because they are dangerous and have difficult to accommodate dietary needs. Another example of an animal that exhibits social releasers yet is not kept as a pet is the owl; Archer (1997) notes that these birds are not usually pets because they are nocturnal. In summary, pets must fit into their owner’s everyday life. Accommodating pets are both easy to care for, control, and enjoy.

Still, it can be argued that people find ways around the difficulties involved in ownership of wild animals. Evidence of people wanting this sort of pet-like relationship with wildlife can be seen outside of the wildlife tourism industry. The desire for closeness or companionship with an appealing wild animal might serve as part of the reason for the rise in the popularity of wildlife rehabilitation. Though the rehabilitated animal is not actually kept on a long-term basis, the rehabilitator gets the sense of being the owner (or even parent) of the animal by providing its medical attention and care. Another example might be the popularity of “adoptions” of zoo animals – where patrons feel as if they own and have a connection with a wild animal because they support it financially. Even if reasons are unique to each individual and difficult to distinguish and understand, it is common for humans to seek out connections with wild animals.

HWAI tourism has made it even easier for people to experience a wild animal without being responsible for it. Through swim-with operations, people can visit a wild animal in its own aquatic habitat – and unlike pets or adopted zoo animals, they do not have to own or care for

an animal to interact with it. The animal exists in its own natural habitat. Today, with the increasing availability of HWAI tourism, people can interact with wild animals that are unavailable as pets. Jarvis and Ingleton (2001) note in their documentary on the dolphin tourism industry that tourists "...want to interact – to touch, pat and feed these wild animals as if they were pets." Perhaps HWAI tourism is just the newest means for people to attempt to find that sort of closeness with species of wild animals.

It is also important to consider how we can explain tourism based upon wild animals that seemingly have little or no features that might qualify as a social releaser. Certainly not all tourists who swim with dolphins and manatees innately find these species appealing because they exhibit social releasers. Why would a tourist desire to interact with a wild animal in this case? This brings another motivation into play: real and/or perceived danger associated with a tourism activity. As with roller coasters, skydiving, and bungee jumping, risk in wildlife tourism can be an attraction to tourists. A perfect example of this is crocodile tourism (Ryan & Harvey, 2000) – these animals are not categorized as "cute" like a human baby or pet. Ryan and Harvey note that these creatures are "treated with a mixture of awe, fear, and grudging respect as survivors from the period of the dinosaurs." Though not all interactions with wild animals are inherently dangerous, there is often at least some risk. Wild animals are unpredictable and able to injure people, and if they are located in their natural habitat, tourists and their guides have far less control over the encounter. This may be part of the draw, especially with dolphin tourism, which can carry a certain amount of risk to participants, as will be discussed later.

Finally, especially in the cases of dolphins and, to some extent, manatees, the media has significant influence on how tourists view target species. Both the tourism industry and the cities that rely heavily on tourism describe target animals in appealing ways to entice customers.

Crystal River, the city where many swim-with-manatee HAWAII operations are based, goes by the slogan “where man and manatee play” (Behrendt, 2006), presenting manatees as an acceptable playmate, much like a pet. Without a doubt, the dolphin is one of the most popularized species in our culture. Mitman (2005, p.179) notes that if we are to look past the image popular culture has created for the dolphin, we must examine “behind the scenes from which the dolphin emerged as a pet star.” Early performing animals, such as Flippy, the first trained dolphin, guided the public’s image of their species as lovable, fun friends in the early 1950s. Mitman (2005, p.165-171) notes that when trainers at Marine Studios trained him and marketed the “dolphin image” to the public, they had to work carefully to hide sexual behaviors that the public might not find so attractive. By not providing the public a true look into all aspects of dolphin behavior, they contributed significantly to the present popular image of dolphins. When *Flipper* the movie was released in 1963, the dolphin had already been made into a “glamour species” in American culture. Of course, wildlife films – from documentaries to television and movies – also have had profound effects on how the public view wild animals.

To some extent, animal documentaries have broken free of the early “expedition film” template of the 1960s, where the audience followed a scientist, filmmaker, or “intrepid naturalist host” or narrator (e.g., Cousteau), through a quest or adventure to find and study a certain animal or natural phenomena (Chris, 2006, p.55). These projects required both extended field stays and expensive long-range filming equipment to view the animals from afar and gather enough footage to fill the timeslot. With the rise of nature-only channels such as Discovery and Animal Planet, ways to circumvent these large costs and time commitments led to what Chris (2006, p.92) terms “action-adventure” nature programs, where the hosts “not only observe but

often interact with wild animals, rescuing or relocating animals in trouble, collecting specimens for scientific study, or handling their quest-objects while exhibiting their findings to the viewer.”

Hosts such as Steve Irwin epitomize this “action-adventure” form of nature film. Irwin received praise for his exuberant desire to educate the viewer, and for his sincere love for the animals and environments in which he works (Paquette, 2007). His work helped bring conservation issues to the public’s attention, and made people excited about the natural world. Still, some scientists argue that the disturbance of animals “under the guise of ‘environmental education’” only tempts the public to follow suit and seek out HWAI, as well (Spradlin, Barre, Lewandowski, & Nitta, 2001). Chris (2006) notes the Irwin often makes light of the hazards of his animal interactions – when bitten several times by a captured rat, he “lifts the rat up near his own face, and grins into the camera. To reframe his loss of control over the animal, he directly addresses the viewer with an almost endearing dismissal of the irritation: ‘They’re little naughty ones, aren’t they?’” (Chris, 2006, p.94). Such presentations of animals de-emphasize the importance of minimizing the impacts to the animal, and could teach the public that interaction is an exciting way for them to both learn about and see animals.

### ***Wildlife Tourism and Tourist Valuation of Interactions:***

Wildlife tourism is not new – consumptive uses of animals through fishing and hunting have been around for millennia. Since the 19<sup>th</sup> century, however, non-consumptive uses of wildlife began to rise in popularity. With the creation of the first national parks in the U.S. between 1870 and the early 1900s, people began taking holidays to relax, visit nature, and see wild animals (Mackintosh, 1999). For example, elk, bears, and bison have long been main attractions of national parks in the western United States. During the mid-1900s, bird watching

and wildlife photography both became popular forms of wildlife tourism. As non-consumptive types of tourism became more common, feeding wildlife arose as a way to encourage animals to approach people and to exhibit some of their characteristic behaviors. During the early years of Yellowstone National Park through the late 1960s, managers would allow tourists to view bears foraging through open garbage dumps (Barcott, 2007).

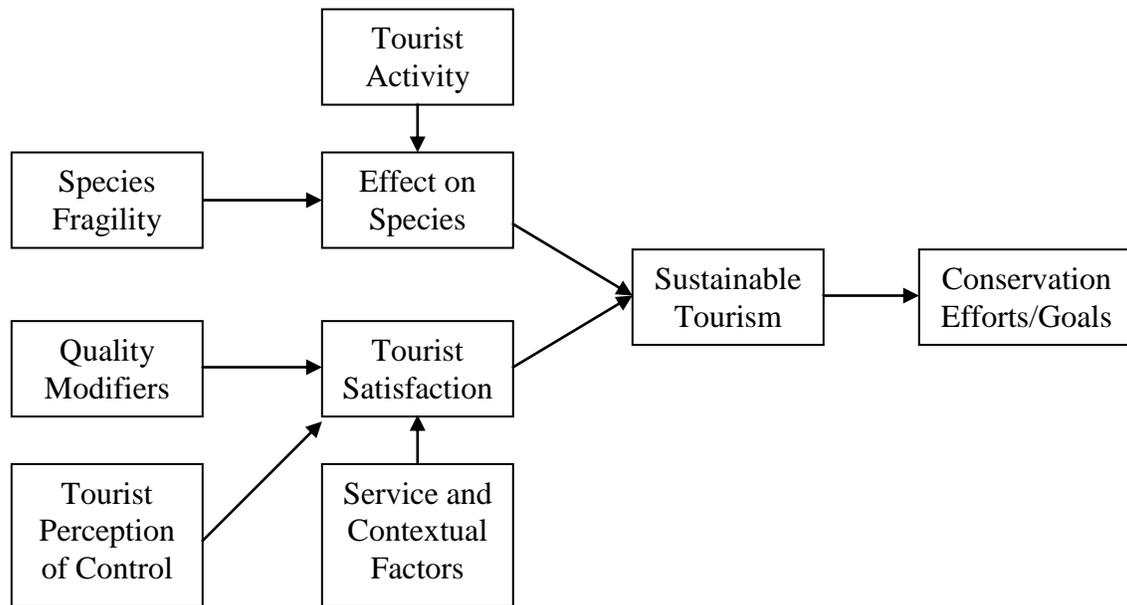
Over the past several decades, tourists have shown an increased interest in activities which involve HWAI, including activities that involve very close approach, feeding, or swimming in the company of wild animals (Reynolds & Braithwaite, 2001). In the United States and many other countries, governments and agencies have passed legislation regulating these activities to some extent, mostly when the actions result in measurable harm to either the tourist or the species. For instance, the National Marine Fisheries Service (NMFS) has established minimum distance, speed, and approach procedures for watching cetaceans (Office of Protected Resources (OPR), n.d. a); and feeding marine mammals is prohibited under regulations enacted pursuant to the Marine Mammal Protection Act of 1972 (MMPA) (Samuels & Bejder, 2004). Some action has been taken to regulate HWAI tourism, but tourists can still swim with wild dolphins in the United States, as well as elsewhere around the world. Also, in Southern Florida, tourists can interact with the endangered Florida manatee in its natural habitat.

Wildlife tourism can often be difficult to manage, because it involves many competing priorities. Conservation is often promoted as a goal of wildlife tourism, but there are a wide variety of views about how this goal should be reached. Sorting out these conflicting opinions can often be problematic to wildlife managers. One view holds that wildlife protection is the primary goal, and tourism and people's enjoyment are only a secondary goal. The opposing view recognizes that tourism can be an important tool to promote conservation and instill

concern for species welfare in participants (Harcourt, 2001; Sorice, Shafer, & Scott, 2003). Even though tourism may have some negative impacts on the species, some believe the increase in public support for conservation efforts due to tourism makes the activity worthwhile. Other issues that factor into wildlife tourism's success in an area are animal welfare, tourist satisfaction, and economic profitability. Tour operators, protected area managers, conservation groups, tourists, and other stakeholders all have different and sometimes conflicting priorities with respect to the target species of HWAI tourism. Therefore, tradeoffs are necessary in tourism management, and managers must work to assess alternative actions so that the decision benefits all stakeholders (including the target species) as much as possible (Reynolds and Braithwaite, 2001).

Reynolds and Braithwaite (2001) created a useful framework of the interacting influences within wildlife tourism that can be modified to apply to HWAI tourism, as well (Figure 2). This framework is best explained when starting at the right-hand side of the causal model, and then moving left to the factors that can affect the end result. Wildlife conservation efforts for animals associated with HWAI tourism depend on the sustainability of the activities involving the target species. Obviously, the overall effect on wildlife must be negligible to make a tourism activity sustainable. Also, tourist satisfaction must be high if that tourism industry is to aid in conservation efforts (e.g., by getting the public excited about preserving a species). To determine the effect on the wildlife, management must assess species fragility and the type of tourist activity. Understandably, species that readily change behaviors and tourist activities that are invasive (or a combination of both) reduce the sustainability of the tourism by increasing the likelihood for a negative change in the species. Three factors must be considered when determining the tourist satisfaction with a HWAI experience: service contextual factors, what

Reynolds and Braithwaite (2001) term “quality modifiers,” and the tourist’s perception of their control over the encounter. Service and contextual factors include the quality of the service provided by the operator, and the comfort level of the tourist (e.g., weather and other environmental factors). Quality modifiers and tourist perception of control both are complex ideas, and will be explained in more depth in the following sections.



**FIGURE 2:** Reynolds and Braithwaite’s (2001) Influence Framework for Wildlife Tourism modified to better illustrate Human Wild-Animal Interaction Tourism.

***Quality Modifiers for Wildlife Tourism:***

Quality modifiers play a role in all forms of tourism – these make the experience worthwhile and exciting, often by providing an escape from the normalcy of everyday life. Reynolds and Braithwaite (2001) list four modifiers common to most tourism activities: duration, intensity, authenticity, and uniqueness. Duration describes the length of the activity – longer experiences are more valuable. One complaint about wild dolphin swim-with tourism is that it is often too short (Curtin, 2006). Intensity measures the level of exhilaration the tourist feels during the activity – often determined by level of danger or risk perceived by the tourist. If

a tourist lives to tell the tale of a dangerous activity, such as cage diving with sharks, they might feel more pride, and thus, value the experience more. Authenticity describes how natural the animals, scenery, and behavior observed seem to the viewer. For example, Curtin (2006) noted that tourists thought swim-with-the-dolphins experiences with wild dolphins was better than if it had been done in captivity, because they were seen in their natural setting. In the same way, swim-with HWAI tourism is viewed as more authentic than seeing a marine mammal in an aquarium or in a documentary on television. Finally, uniqueness refers to whether the event is different from the everyday – highly unique events leave the viewer feeling privileged. Clearly, swimming with wild marine mammals is a unique event for most people.

There are two other quality modifiers that are specific to wildlife tourism: species popularity and species status (Reynolds & Braithwaite, 2001). Tourists find experiences with more popular species more valuable. Popularity can be caused by many factors, such as an appealing appearance (Newsome, Dowling, & Moore, 2005, p.90) or by being well known - species that are in movies (e.g., “Flipper”) or serve as mascots (e.g., Florida’s state marine mammal, the manatee; Miami Dolphins), for instance, are especially popular. Species status simply describes the condition of the species’ population in the wild – if a species is rare, the tourist is likely to find it more appealing and value the experience more (Newsome et al., 2005, p.91). The Florida manatee’s species status of being endangered makes swimming with it a valuable experience.

Tourists have varying motivations for their activities, but escape from the everyday and a search for authenticity seem to be especially fitting in the case of wildlife tourism (Burkart & Medlik, 1981, cited in Gansmo, n.d.; Newsome, et al., 2005, p.188). Wildlife tourism gives people a means to escape from their ordinary life and surroundings – urban and suburban settings

which many feel is away from the “natural world” as they envision it. The Internet, magazines, and television have all brought nature and wildlife into people’s homes as never before. But these easily accessible ways of viewing wildlife are often not perceived as authentic because they give a sense that the viewer is a member of an audience. When tourists encounter wildlife through HWAI tourism, they are able to insert themselves “behind the scenes,” and have what they feel is a truly authentic wildlife experience. The closer the interaction, the more authentic and valuable the experience is to the tourist (Newsome, et al., 2005).

### ***Tourist Perception of Control:***

Reynolds and Braithwaite (2001) found that before making decisions about how to regulate different types of wildlife tourism, one must first be able to identify and characterize the unique activities. It is important to remember that non-consumptive tourism activities, such as swimming with animals, can still be detrimental to species (Orams, 1995). Tourism that involves mere observation usually has less effect than more interactive forms, such as close approach and touch. To understand why this might be, we must investigate the issue of tourist “control” over the encounter.

Tourist control is an important issue when investigating tourist interactions with wild animals. The level of control a tourist exhibits can be a determining factor in whether an activity is detrimental to the target species or may risk harm to the tourist. Reynolds and Braithwaite (2001) segmented the issue of control into two forms: intellectual and physical control. Good tourism management should make conscious decisions about how they should address both of these forms of control. A tourist exhibits “intellectual control” over the encounter when they have an understanding of the species and what to expect during interaction. Managers can

impart intellectual control on the tourist through education prior to animal interaction, a training video, or narration and interpretation by a guide (Newsome, et al., 2005). By educating the tourist, management often increases visitor safety and satisfaction with the encounter. Reynolds and Braithwaite's (2001) "physical control" describes the amount of barriers between the tourist and the animal. This is usually the area where tourists' and conservationists' desires clash. Management can choose to reduce tourists' physical control by: enacting rules and regulations governing the activity; putting up physical infrastructure such as fences between people and the animals; or having guides accompany and supervise tourists while they interact with the animals (Reynolds & Braithwaite, 2001). For example, in the Galapagos tourists must stay within marked visitor areas, and are not permitted to touch or pet wildlife (Parque Nacional Galápagos, n.d.). Obviously, reducing the tourists' physical control over a situation reduces the risk to the people and animals, but this usually also decreases the tourists' satisfaction with the experience (Reynolds & Braithwaite, 2001). People want to feel like they are in control of the encounter, making their own decisions. So, the real dilemma with control lies with the physical control issue – how does tourism management decide where to set the balance?

There has been no research on this topic, but it seems likely that when tourists gain increased physical control over a HWAI encounter – such as decreasing distance between people and the target species – managers lose some control over how the activity impacts the species. Next, we will examine the current legislation that serves primarily as physical controls over swim-with tourism with dolphins and manatees. Later, in the case study section, there will be more in-depth analysis of some of the other intellectual control in place.

## **LEGISLATION APPLIED TO DOLPHIN AND MANATEE BASED TOURISM:**

The Florida manatee (*Trichechus manatus latirostris*), one of two sub-species of the West Indian manatee, has enjoyed legal protection of one form or another in Florida for over 100 years. Starting in 1907, people were fined \$500 for killing or harming a manatee (USFWS, 1995). The United States Fish and Wildlife Service (USFWS) added the manatee to the federal endangered species list in 1967, in accordance with section 1(c) of the Endangered Species Preservation Act of 1966 (32 FR 4001). The Marine Mammal Protection Act of 1972 (MMPA) and the Endangered Species Act of 1973 (ESA) extended further Federal protection to the Florida subspecies. The state of Florida classified manatees as a threatened species in 1974 under their state endangered species legislation. Later, their status was changed to endangered in 1979. Florida also passed the Florida Manatee Sanctuary Act in 1978 (FMSA), allowing state agencies to designate sanctuaries and restrict boat use temporally and regionally, according to manatee migratory movements. In winter manatees move into warmer fresh waters, and sanctuaries are closed to boat traffic between November 15 and March 31 (FWC, 2007a).

Both species of dolphins involved in HWAI tourism in the United States are protected under the MMPA. Neither the bottlenose nor the Hawaiian spinner dolphins are classified as endangered or threatened by state or federal agencies. Other regulations apply to dolphins and manatees (e.g., Dolphin-Safe Tuna regulations, Animal Welfare Act for captive animals), but they are not relevant to swim-with tourism.

### ***Introduction to the Existing Legal Framework:***

To look at how swim-with tourism might be regulated differently, we must first examine the relevant aspects of the existing legal framework. The MMPA and ESA are the two statutes of importance to this issue – the MMPA applies to both dolphins and manatees, the ESA pertains to only the endangered Florida manatee. Of particular interest are the statutes’ definitions of “take” and “harassment” of species.

Both the ESA and MMPA strictly prohibit the taking of a species, except where permitted. In the ESA, take of species is “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” 16 U.S.C. §1532 (19). The MMPA relies on a slightly simpler, but very similar definition: take is “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal” 16 U.S.C. §1362 (13). To further explain the term “take,” both statutes also describe what is meant by “harassment.” This is the most critical component of the take prohibition of both statutes in regard to swim-with tourism.

The ESA defines harassment as: “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering” U.S.C. 50 CFR 17.3 (Hess, 2000). The 1994 Reauthorization of the MMPA defines harassment more thoroughly in a two-tiered system, differentiating between higher and lower levels of harassment:

Any act of pursuit, torment, or annoyance which—

- (A) [Level A] has the potential to injure a marine mammal or marine mammal stock in the wild, or

(B) [Level B] has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild. 16 U.S.C. §1362 (18)(A)(i-ii) (1994)

Both definitions are somewhat vague, and therefore harassment has been further defined by implementing agencies in different ways, leading to confusion about whether parties have indeed “harassed” an animal (Hogarth, 2003; Sorice, et al., 2003). Dr. William Hogarth, the Assistant Administrator for Fisheries at the NFMS, states that the interpretation, execution, and enforcement of these statutes are all complicated for the implementing agencies (Hogarth, 2003). The limitation that the action be “pursuit, torment, or annoyance” has significantly narrowed the range of actions that could be prosecuted under the MMPA, for instance. In the ESA, one must prove “significant” disruption to the animal – this is especially difficult to do in cases where data on behavioral responses of the animal is incomplete, and a threshold of “significance” is difficult to define or measure. It is also important to note that implementing agencies are under the burden of proof when they believe an action constitutes harassment. To bring a case against the person taking the action in question, they must first show how the action injured or disturbed the animal (Hogarth, 2003). Isolating such causal relationships can be difficult (Sorice et al., 2003).

In 2005, a proposed bill for the reauthorization of the Marine Mammal Protection Act included an attempt to refine the MMPA definition of harassment, and make the two-tiered system more specific:

The term “harassment” means any act which-

- (A) [Level A] injures or has the significant potential to injure a marine mammals or marine mammal stock in the wild; or
- (B) [Level B]
  - (i) disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered; or
  - (ii) is directed toward a specific individual, group or stock of marine mammals in the wild that is likely to disturb the individual, group, or stock of marine mammals by disrupting behavior, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering.” (H.R. 4075, 2005)

By removing the “pursuit, torment, or annoyance” clause and replacing it with “any act,” the NMFS made an effort to both clarify the restrictions for the regulated public and allow for easier enforcement. Also, by changing the description of level B harassment, they attempted to expand and clarify its definition to cover a wider range of activities. It was hoped that these new definitions would make it much easier to distinguish particular activities as “takings.” The NMFS administration argued strongly for this section of the amendments, but this language was omitted when H.R. 4075 was passed by the House. 4075 never became law; it was cleared from the books with the end of the 109<sup>th</sup> Congress.

The State of Florida also enacted the FMSA, which offers the manatee additional species-specific protection. The FMSA defines harassment in yet another way, quite similarly to the ESA: “any intentional or negligent act or omission which creates the likelihood of causing an injury to a manatee by annoying it to such an extent as to disrupt normal behavioral patterns

which include breeding, feeding, or sheltering” F.S. §370.12(2). The removal of the term “significant” as used in the ESA may allow for an easier interpretation, but the two-tiered approach of the MMPA is also useful in the permitting process, as overviewed in the next section.

***Current Permitting Process:***

The USFWS and NMFS share responsibility for implementation of the ESA. Generally, USFWS manages land and freshwater species (such as the manatee), while NMFS manages marine and anadromous species. Any private party, corporation, or state or local government that plans to take an action that might unintentionally harm (thus, “take”) a listed species such as the manatee, must apply for an incidental take permit (USFWS, 2005). Incidental Take Permits are authorized in section 10 of the ESA 16 U.S.C. §1539 (a)(1)(B), which allows for “incidental, but not intentional,” take of a listed species. The approved permit releases the applicant from Section 9 liability for accidental takings.

During the application process for an incidental take permit, the applicant is supposed to prepare a Habitat Conservation Plan (HCP) that describes the action that could potentially affect a listed species, and predicts the total effect of the potential take. In addition, the HCP must propose actions to prevent or compensate for negative impacts on the listed species (USFWS, 2005). However, HCPs are seldom, if ever, prepared for aquatic species. The USFWS permits HWAI tourism in Citrus County, Florida, but no HCP exists for the Florida manatee. Also, when the proposed action has the potential for negative impact on a listed species, the party may be required to draft either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) (USFWS,

2005). An EIS is necessary when it is expected that an action may result in a significant impact to the species, and an EA is required when there is a Finding of No Significant Impact (FONSI) by the governing agency. Only when it has been previously established that the action will not be likely to have significant impacts is a Categorical Exclusion (CE) applied, and no EIS or EA is required.

For marine mammal species that are not listed as endangered or threatened by the ESA, such as bottlenose and spinner dolphins, MMPA permit requirements still exist. General Authorization permits for scientific research and photography (commercial or educational) cover specific types of take. More relevant to the issue of HWAI tourism, the NMFS has created two permit types dealing with takes of marine mammals, excluding fisheries and research: Incidental Harassment Authorization (IHA) and Letters of Authorization (LOA) (OPR, n.d. b). If the party can show that the activity will have no potential for serious injury or mortality (or that this potential can be eliminated), then they are required to apply for an IHA. Otherwise, an applicant must apply for an LOA. In this way, harassment involving no actual injury or death (IHA permit) has been separated from other forms of “take” (LOA permit) in the permitting process. When applying for either type of permit, the party must submit a application detailing the activity, its anticipated impact on the species and habitat, available alternatives or means to minimize impact, and monitoring plans to study the activity’s impact, as well as other information such as necessary NEPA documentation (OPR, n.d. b). Dolphin swim-with tourism operations have not been required to go through either of these MMPA permitting processes.

The Marine Mammal Commission (MMC) is an independent body established under the MMPA that reviews all permit applications. The Commission provides oversight of the MMPA and ESA to Congress by presenting objective, expert advice to the federal government. To do

this, the MMC conducts assessments of marine mammal species, and reviews current and proposed methods used for their conservation (MMC, 2007a). Federal agencies are not required to implement the recommendations of the MMC, but when an agency does not follow the advice of the Commission, they are required by the MMPA to provide the MMC written explanation of their decision within 120 days.

## CASE STUDIES:

A common component of human-animal interaction wildlife tourism descriptive language and advertising emphasizes the “experience” – rather than “observation” – of being with the animal. Sorice, Shafer, and Ditton (2005) give a perfect example of this outlook in a quote from a manatee tour operator:

*Now, encountering manatees is different than seeing manatees. If you want to see manatees today you can probably stand on the front of the boat and I'll point out some manatees. ... But, if you want to encounter a manatee, which is to have it roll around and take its picture and rub its belly and stuff, then there's a couple of things you need to do.*

Traditional non-consumptive wildlife tourism – bird watching and photography, for instance – seem more satisfied by simple observation. On the other end of the spectrum, consumptive tourism, such as trophy hunting, implies a directly measurable impact resulting from the activity. As wildlife tourism has changed over the years, these terms seem to have become obsolete, as tourist activities are less easily placed into these two extreme categories. In fact, one might be better served to look at wildlife tourism as a continuum of influence on the target species, instead. Though it may be categorized as non-consumptive, many scientists argue that HWAI tourism may have impacts on species involved. As wildlife tourism becomes more interactive, it also becomes more influential on the species involved by impacting habitats and altering behaviors. Measuring the human affects on the target species – whether the animal is consumed or not – seems a much better indicator of the activity's impact on the species as a whole. Of

course, this scale is much more difficult to quantify, because it requires more knowledge of the biology and behavior of the species.

This section is intended to illustrate the wide array of potential affects human interactions can have on different species, and give a basis for why some argue current legislation might be changed. Swim-with tourism in the United States developed around two charismatic megafauna – the dolphin and manatee. These examples highlight issues of tourist control over HWAI activities, and they also cover an array of management problems and uncertainties.

### ***Swimming with the Florida Manatee:***

Tourism based on the Florida manatee (*Trichechus manatus latirostris*) has existed for over twenty years, but has grown significantly in the last ten to fifteen (Sorice et al., 2005). The popularity of these docile and “cute” (though endangered) creatures is apparent everywhere: from “save the manatee” campaigns, to south Florida stuffed animal souvenirs, to one of Florida’s special interest license plates. The draw of swimming with the charismatic manatee is probably much the same as with other marine mammals – it is both novel and unique to the tourist. There appear to be no studies investigating tourist attitudes and motivations for participating in manatee HWAI tourism. In relation to other HWAI tourism, there seem to be almost no real risks to people associated with this tourism activity. There have been no comparative studies, but manatees are likely one of the safest large animals involved in HWAI tourism. The safety of the activity, as well as its proximity to other tourist attractions within Florida, may partially account for its popularity. With estimates of 80,000 - 100,000 people visiting the Crystal River National Wildlife Refuge each winter, and thousands more visiting the Blue Waters area of the Homosassa River (King & Heinen, 2004; Save the Manatee Club

(SMC), 2007a), there is no doubt that swimming with manatees has become a popular tourist activity.

A number of recent studies have looked at public attitudes about manatees over the last two decades, but the focus is on either the general public or boaters as a group (Aipanjiguly, Jacobson, & Flamm, 2003; Morris, Jacobson, & Flamm, 2007). Boat collisions cause a large number of manatee fatalities, so this is an important group of people to study, especially if negative behaviors are to be mitigated. As more is learned about boaters' attitudes, managers have changed their approaches – for instance, it was determined that boaters might respond to more signage on waterways (e.g.: “go slow, manatees below”, or “remember to drive slowly - \_\_\_ manatees have been killed so far this year”) (Morris et al., 2007). Similarly, a better understanding of swim-with tourist attitudes and beliefs might help in choosing regulation to best protect manatees from swim-with tourism's negative impacts. No matter how good the rules look on paper, in order to work, they must be both enforceable and accepted by tourists. To make sure that the regulated population understands and is willing to follow the rules, more knowledge about their attitudes can help managers predict their reactions to new regulation.

Unfortunately, HWAI tourism may not be completely harmless to the manatees – but there is uncertainty about how extensively human interaction affects the manatee population (Sorice, et al., 2005). The impacts of swim-with tourist harassment are not as easily measured, but managers recognize that the animals are sometimes forced to forego foraging, resting, nursing, or other necessary behaviors when people approach them (King & Heinen, 2004). Manatees escaping overzealous tourists must expend energy to swim away, and sometimes they must temporarily leave the warm waters they need to survive the winter. Some scientists worry that these sub-lethal, negative impacts could have adverse consequences for manatees (King &

Heinen, 2004; Sorice, et al. 2003). If HWAI activities constitute “takings” of the animals according to the definitions in the ESA, MMPA, and FMSA, agencies must still show that there is an effect on the animals in order to prosecute. Scientists know a good deal about the biology of this species, but it is very difficult to quantify the relationship between human interaction and changes in manatee behavior and population health. Thus, there is an urgent need for research on how manatees are affected by tourism; otherwise, management may continue to be difficult.

In their recent 5-year review of the species, the USFWS (2007) stated that the Florida manatee’s population is increasing, and along with the FWC, they have recommended reclassifying the species to threatened status under state law (MMC, 2007b; SMC, 2007b; SMC, 2007c). Some feel that reduced mortality in the protected areas and increased numbers indicate that the species management strategy is effective (Sorice, et al., 2005), but there is disagreement over whether manatees are in recovery (King & Heinen, 2004; MMC, 2007b). The MMC (2006) has stated that current survey results cannot reliably be compared to those in the past. The USFWS’s understanding of the species’ biology has enabled them to provide better protection through the designation of sanctuaries and regulation over boating practices (e.g., no wake zones and speed limits). Unfortunately, the tourism aspect of manatee management has not received comparable attention (Sorice et al., 2003). For instance, with the manatee tourist numbers rising and currently reaching around 100,000 people per year (King & Heinen, 2004; Save the Manatee Club (SMC), 2007a), Sorice et al. (2005) note that the USFWS has not increased its enforcement staff in the past ten years. Also, as there are increases in both number of manatee sanctuaries and human encroachment on manatee habitat, the enforcement staff is strained more than ever before. Because of these constraints, the USFWS relies on self-enforcement in this tourism industry for the most part.

Education is the main management tool – all tourists participating in a swim-with program are required to watch a ten minute “Manatee Manners” video about how to safely and appropriately interact with manatees (Sorice, et al., 2003). Some of the guidelines for interaction include: observe manatees from the surface and at a distance; do not ride, chase, poke or surround manatees; and never separate a mother and calf or an individual from the group (Florida Fish and Wildlife Conservation Commission (FWC), 2007a). Some (Orams, 1995) contend that education should be the primary tool for managing wildlife tourism, but Sorice, et al. (2003) state that in this case, and others, self-regulation may be inadequate due to carelessness and disobedience. Morris et al. (2007) noted that with education for boaters, a short, one-time educational experience was not enough to change their attitudes toward manatees and encourage responsible behaviors. Though more difficult to implement, they recommended longer education programs, since “the duration of an education program is positively correlated with its effectiveness” (Hines et al., 1986, Zelezny 1999 both as cited in Morris et al. 2007, p.602). Perhaps a short manatee video is not enough to educate swim-with tourists about the risks to the species associated with such close HWAI. All of the aforementioned rules are broken regularly (King & Heinen, 2004; Ragen, 2007). Tourists also have also been documented behaving in even more inappropriate manners: entering marked off-limits areas in sanctuaries to initiate interaction, purposefully separating calves from mothers for photo opportunities, and attempting to ride manatees using ropes as harnesses (Colson, 2007; Ragen, 2007).

As mentioned in the previous section, several federal and state laws protect the endangered manatees by regulating how people can approach and interact with the species. The ESA, MMPA, and FMSA prohibit “harassment” of these animals. However, these three acts define harassment in different ways (Table 1), leading to confusion about which rules to enforce

(Sorice, et al., 2003). Even more confounding, these definitions are vague, and terminology such as “has the potential” or “creates the likelihood” can make it difficult to prosecute individuals who are breaking the law. With the limitations of current scientific knowledge about affects of human-manatee interaction, it is difficult to quantify and prove that an activity – such as petting or temporarily separating a mother and calf – “injures” the animals according to these definitions in order to prosecute violators.

**TABLE 1:** Different definitions of “harassment” in three state and federal Acts (as cited in Sorice, Shafer, & Scott, 2003).

<i>Florida Manatee Sanctuary Act of 1978</i>	<i>Endangered Species Act of 1973</i>	<i>Marine Mammal Protection Act of 1972</i>
“Any intentional or negligent act or omission which creates the likelihood of causing an injury to a manatee by annoying it to such an extent as to disrupt normal behavioral patterns which include breeding, feeding, or sheltering. The intentional provision of any type of food to manatees not in captivity shall be considered harassment under this definition, unless authorized by a valid federal or state permit.”	“An intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.”	“Any act of pursuit, torment, or annoyance which: (A) has the potential to injure a marine mammal or marine mammal stock in the wild; or (B) has the potential to disturb a marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.”

Finally, it is important to note the USFWS and FWC’s positions on swim-with-manatee tourism. After the recent media attention to the cases of blatant harassment of manatees, the USFWS’s Crystal River National Wildlife Refuge manager stated that: “Our position is that swimming with manatees in local waters is allowable, and limited animal-initiated contact is acceptable. However, in these videotapes there is clearly too much of a good thing” (FWC, 2007b). Unfortunately, he does not define what is an allowable “contact” in this statement. A

member of the public might easily interpret contact to mean touching. Following this interpretation, they might believe touching manatees is acceptable, as long as the animal approaches first. On the FWC's manatee guidelines website, though, the agency specifically states that swimmers should "look, but don't touch manatees. Passive observation is the best way to interact with manatees and all wildlife" (Figure 3) (FWC, 2007a). For their guidelines to work, there needs to be clarity in the official position on touching manatees during swim-with tourism, otherwise this could be a source of confusion amongst tour guides and tourists.

The USFWS's view on manatee-human interaction seems to be inconsistent with how they view close interaction with some other species. Obviously, with species that pose risk to people who approach too closely, such as grizzly bears, the USFWS encourages viewing from a safe distance (USFWS, 2003). But risk of harassment to the species also appears to sometimes be a determinant in whether close approach is deemed permissible. Interestingly, with another marine species that poses little threat to humans, the sea otter, the USFWS notes that human disturbance could potentially cause energy expenditure and lead to less energy and time spent on other important behaviors (Johnson, 2006; USFWS, n.d.). These concerns mirror the potential for HWAI tourism to cause manatees to expend energy evading tourists and forego necessary behaviors (King & Heinen, 2004). In the case of sea otters, though, the USFWS recommends that people never directly approach sea otters, and always keep a distance of 50 yards away.

Currently, the USFWS is preparing a new comprehensive management plan for the Crystal River National Wildlife Refuge, and the USFWS executive director has stated that tourist harassment of manatees will be addressed (SMC, 2007a). Depending on whether or not they find tourist activities to be stressing the Florida manatee population, the results of their investigation may be the first step towards new regulation over this swim-with industry.

**REMEMBER-  
LOOK BUT DON'T TOUCH.**



**INTERACTIONS WITH HUMANS MAY BE HAZARDOUS  
TO THE MANATEE'S WELL BEING.**

**FIGURE 3:** A figure from the FWC's website describing manatee interaction guidelines. (FWC, 2007a)

***Swimming with Dolphins:***

*"The thing that astounds me," the older man confides, "is that I've been to Africa and seen many wild animals including" he looks up and counts them on his fingers, "elephants, giraffes, lions, cheetahs, zebras, hippos, and rhinos, and this was just so different. None of those animals are interested in human beings the way these dolphins obviously are."*

– Quote from a swim-with-dolphins tourist (Stewart, 2006)

The dolphin tourism industry has grown immensely in the last fifteen to twenty years – using a simple Internet search and the keywords “swim with dolphins,” one can find operations all over the southern U.S., the Hawaiian Islands, and elsewhere around the world. In the 1980s, the primary form of cetacean tourism was the boat-based “watching” activity (Orams, 1997). The “swim-with” experience became increasingly popular through the early 1990s. Jarvis and Ingleton (2001) note that dolphin tourism is based upon the animal’s high popularity. Television

and movies both contribute to tourists' desire to interact with this species. "Flipper" and other movie and television characters anthropomorphize dolphins by showing them interacting with people in the same way that a dog might behave with its owner. By emphasizing their "human-like" social behaviors and playful, inquisitive nature, the media have created an image of dolphins as friendly and fun (Curtin, 2006; Office of Protected Resources (OPR), n.d. c). Instead of seeing a predator's mouth full of teeth, tourists see a smile.

A few recent in-depth examinations of tourist attitudes on interactions with dolphins have helped shed light on tourist motivations and attitudes. Tourists see dolphins as extremely intelligent beings that make a conscious decision to interact, as can be seen in the quote at the beginning of this section (Stewart, 2006). The species' intelligence and interest in humans seem to be the primary draws for tourists (Curtin, 2006). Tourists sometimes described dolphins as better than humans because they do not possess the "negative qualities" of humans (e.g., being ego-centric and judgmental, or harmful to the environment). Touching and eye contact seemed to be the most treasured events during dolphin interaction, because they provided a sense of connection to the animal (Stewart, 2006; Curtin, 2006). The dolphin's grace and agility in the water were also appealing to people (Curtin, 2006). Jarvis and Ingleton (2001) note that the dolphin is viewed as "pure and peaceful" by New Age enthusiasts, and they view swim-with experiences as both calming and bringing them closer to nature. Finally, Curtin (2006) noted that tourists reported an unexplainable, yet almost universal sense of euphoria when swimming with dolphins.

The two species that are primarily impacted by HWAI tourism in the U.S. are the bottlenose dolphin (*Tursiops truncatus*) in the Southeast and the spinner dolphin (*Stenella longirostris*) in Hawaii. The impacts on the two species differ because these species have

different behavior and habitats. Some scientists claim that dolphins sometimes seem to receive an enjoyable play experience from interacting with humans (Orams, 1997; Trone, Kuczaj, & Solangi, 2005). Of course, it is important to note that this is not always the case, since many studies have shown that dolphins learn to avoid interaction with humans (Bejder, et al., 2006; Constantine, 2001; Samuels, Bejder, & Heinrich, 2000). HWAI experiences can seem pleasant to human participants, but there are many risks to people that are often not emphasized to the public. Bottlenose dolphins have isolated and forced people out to sea, pushed people underwater, and even bitten, rammed, or attempt to mate with swimmers (MMC, 2006; Orams, 1997; OPR, n.d. c). There are no reports of spinner dolphins attacking people, but they have been observed making aggressive displays at swimmers. Also, because sharks hunt spinners in inshore habitats, there is also risk of shark attack if people attempt to swim with them (NMFS, 2005). For both species of dolphins, behavior of tour boats is another cause for concern. Aggressive approach techniques where boats surround, cut through, or place themselves in the path of a pod take place, all in attempts to ensure interactions when the swimmers enter the water.

In the past, bottlenose dolphins were fed regularly to encourage interaction in the southeastern U.S. This is now prohibited by the MMPA because feeding can lead to: increased mortality in young animals lacking proper foraging skills; inappropriate begging and stealing behavior in habituated animals; and aggressive behavior toward swimmers in expectation of food (Orams, 1997; Orams, 2002; Samuels & Bejder, 2004). Unfortunately, the NMFS has noted that some swim-with tour operators in the Southeast continue illegally feeding bottlenose dolphins to encourage interaction to meet tourist's desires for a "dolphin experience" (Spradlin, Drevenak, Terbush, & Nitta, 1999). Habituation to humans is one of the biggest risks associated with

HWAI to bottlenose dolphins. When dolphins become habituated to human contact (or actively seek it out), they are more vulnerable to anthropogenic dangers (e.g., ending up victims of boating accidents, harmed by malevolent humans, or malnourished from eating human handouts) (Sorice, Shafer, & Scott 2003). In following one habituated juvenile bottlenose dolphin for 3 days, Samuels and Bejder (2004) noted that the animal was put in danger or harmed numerous times (e.g., closely followed by boats and jet skis, surrounded by watercraft, and hit in the face for begging). Swimmers potentially put themselves in danger when swimming with this individual (e.g., petting while provisioning food, getting face-to-face with it, and being next to it when it did tail-smacks or chin-slaps).

On the other hand, humans often approach spinner dolphins in shallow, inshore areas along the main Hawaiian Islands where they rest and socialize during daytime hours. The NMFS (2006) has stated that spinner dolphins disturbed by HWAI tourism spend less time resting than non-disturbed pods. The NMFS (2006) suggests that animals that are forced to expend energy evading tourists may have decreased energy available for hunting, socializing, reproduction, and other important behaviors (Danil, Maldini, & Marten, 2005). To date, however, there have been no studies that quantify the effects of HWAI tourism, nor any that measure how these sub-lethal impacts influence the population in the long-term (Bejder et al., 2006). Also, it is difficult to distinguish the effects of tourism from many other environmental factors that can affect these animals. Thus, proving that certain tourist activities constitute harassment under the MMPA can be especially difficult. The only real linkage that currently exists is the study of Danil et al. (2005) who showed that increased tourist presence results in decreased rest time. More studies should focus on examining the link between harassment and altered behavioral states.

Unlike the USFWS, the NMFS has held a strong position against all swim-with activities, stating:

*NOAA Fisheries does not support, condone, approve, or authorize activities that involve closely approaching, interacting, or attempting to interact with [marine mammals] in the wild. This includes attempting to swim with, pet, touch, or elicit a reaction from the animals.* (OPR, n.d. a)

Along with MMPA protection against harassment, the NMFS has published guidelines for dolphin viewing. The “Protect the Dolphins Campaign” and Southeast Regional Guidelines both promote responsible viewing by: observing from a distance of at least 50 yards; limit viewing time to 30 minutes or less, avoid trapping marine mammals between boats or boats and shore, avoiding startling movements or noises, avoid separating mother and calf pairs, move away if an animal appears stressed or begins to approach you, and avoid touching and swimming with marine mammals (OPR, n.d. c; OPR, n.d. d). The NMFS has also adopted the “Ocean Etiquette” guidelines for marine wildlife viewing, which was created in cooperation with the National Marine Sanctuary (NMS) program (NMS, 2007a). Ocean Etiquette encourages people to educate themselves, observe from a distance, and never touch. The “Dolphin Smart” program also was created as a voluntary education and outreach certification program for tour operators in the Florida Keys National Marine Sanctuary (NMS, 2007b). Certified operators take time to educate tourists about dolphins, safe viewing, and the reasoning behind regulation. They agree to follow NMFS regional viewing guidelines, and report suspected violations.

Currently, the NMFS is in the Environmental Impact Statement (EIS) drafting process on the potential rulemaking under the MMPA concerning spinner dolphin swim-with tourism in Hawaii. The agency has gone through the public scoping process, and has proposed to use

partial closures of certain specified resting habitat in the main Hawaiian Islands (NMFS, 2006).

To do this, the NMFS would identify primary resting habitat used by dolphins for protection. By using partial closures, they might either use temporal or spatial divisions. Temporal divisions would require closing off entire bays, but only during peak dolphin resting hours. Spatial closures would be full-time areas marked by buoys, but only part of the bay would be closed. The closures might only be off-limits to tourism vessels – other boats might be allowed. In accordance with EIS practices, the NMFS is also considering the alternative actions as follows:

- (1) No action – the NMFS notes that this will allow the increase in human-dolphin interaction to continue.
- (2) Establish a minimum distance limit – thus preventing people from approaching the dolphins too closely.
- (3) Regulating certain specified human behavior – this would prohibit harmful behaviors by people (e.g., swimming with or touching) and/or boaters (e.g., placing a boat in the direct path of dolphins).
- (4) Instituting a complete closure of spinner dolphin habitat – a more restrictive form of the proposed action.

## **GENERAL CONCLUSIONS AND IMPLICATIONS:**

The lack of scientific data on the potential impacts of swim-with tourism on different species is a huge obstacle to effective management of the tourism industry (Constantine, 1999; Sorice et al., 2003). In an interesting observation, Mangel (1996, cited in Constantine, 1999) notes that industries utilizing wildlife often begin with no knowledge of the possible short- and long-term effects on the species. This lack of foresight results in a deficiency of pre-tourism data to use in comparison studies, which could help scientists understand the effects of tourism. Some recent research has begun to provide us with a better understanding of HWAI tourism and its impacts, but further research is vital to the sustainability of tourism associated with these species. Managers need to know how variables such as tourist numbers, activity types, and level of education can potentially affect wildlife (Constantine, 1999).

To revisit the issue of tourist control over wildlife encounters, it seems apparent from the dolphin and manatee case studies that reducing the distance between tourist and animal removes a barrier to the tourist's physical control. This might not be entirely detrimental in all HWAI cases, but with dolphin and manatee tourism, agencies might consider increasing other "barriers" to the tourist's physical control to prevent or mitigate the negative effects that are proposed to result from interaction. For example, agencies could consider regulation over what activities are acceptable around wild marine mammals. By doing so, dolphin and manatee tourism could potentially be made more sustainable. Often researchers argue that educational programs prior to the activity would be the best way to prevent problems (by increasing tourist intellectual control) (Orams, 1995; Reynolds & Braithwaite, 2001). Stronger regulation and enforcement are also advocated as methods to limit tourist physical control over the interaction (Sorice et al., 2003),

but others argue that in order to create a functioning system of regulation and enforcement, we must first know more about the effects of swimming with these species (Constantine, 1999). A combination of these methods could be used to attempt to address all of these viewpoints – obvious problems could be mitigated through education and regulation, and an adaptive management methodology could be used to allow for the incremental incorporation of new research (Plimmer, 1992, as cited in Reynolds & Braithwaite, 2001).

## **POLICY ALTERNATIVES:**

To deal with potential negative impacts on target species, I recommend a multi-faceted approach, involving: a combination of increased monitoring and research, education, and regulation. Depending on agency viewpoints, problems could be dealt with as scientific evidence demonstrates linkages between HWAI tourism and negative effects; or a more precautionary approach could be taken, and efforts could be made to mitigate the assumed impacts of HWAI tourism. The latter approach would involve enacting regulation before human impacts on dolphins and manatees are fully understood. In this approach, an adaptive framework would be especially important to allow for changes in management strategies as new information comes to light.

As the laws are currently written, agencies entrusted to enforce harassment prohibitions are under the burden of proof, and it has been sometimes difficult to isolate and demonstrate the impacts of HWAI tourism activities (Sorice et al., 2003). An attempt to collect baseline data from populations unaffected by tourism (or prior to tourism's establishment) should be made whenever possible to fill voids in biological and behavioral data and make before-and-after-tourism comparisons possible. Long-term studies are also valuable, since they can show both immediate and cumulative effects over time (Bejder & Samuels, 2003). Constantine's (2001) study of the affects of tourism on bottlenose dolphins over multiple seasons is an example of one study that allows for a more longitudinal examination of effects. Data from current populations must also be taken if agencies plan to use it to examine the effectiveness of any proposed regulatory changes or alterations in tourism practices. When collecting data, it will be

imperative to examine dolphin, human, and environmental variables – target species population numbers, tourist numbers, and types of tourist activities, for example.

Even with the recent studies showing some sub-lethal impacts of HWAI on dolphin and manatee populations, agencies may still find it difficult to demonstrate that tourists participating in swim-with activities are harassing dolphins and manatees. Agencies should consider refining the definition of harassment as a policy option to overcome this problem. As Hogarth (2003) argues, the current definition is too vague. There needs to be a better definition of what constitutes a harmful impact to marine mammals, so that potentially adverse human activities can be regulated. The NMFS should renew their fight to refine the term “harassment” in the MMPA, similar to what was proposed by the 2005 Amendment §515 of H.R. 4075 (2006). The NMFS has been arguing for such an action for several years (Hogarth, 2003). To make the definition of harassment more enforceable, the language must be specific about what is prohibited. To refine the current definition of Level B harassment, for instance, more specific wording would be useful to distinguish a clear threshold for harassment. This would eliminate confusion over the language “potential to disturb,” which could be interpreted to cover a much wider array of activities than likely was intended. Also, if Level B harassment is separated into two parts, similar to that proposed in H.R. 4075, it would be best to specify what is meant by activities “directed toward” species in part (ii) (Hogarth, 2003). The NMFS should state that these activities include, but are not limited to: tourist viewing, swimming with, touching, and otherwise coming in close proximity to marine mammals. Of course, it might be useful to specify what “close proximity” entails – perhaps on a species-by-species basis, if necessary. By doing so, the statute would offer stronger language governing HWAI tourism and swim-with activities. Though it may take time, it could help prevent confusion if the MMPA, ESA, and

FMSA adopted the same definition of harassment. Of course, alterations of definitions of key terms, such as harassment, could also involve adjustments to agency permitting processes and approaches to HWAI in general.

Because their regulations and decisions are based upon the same legislation (i.e., ESA, MMPA), the NMFS and USFWS should come to agreement on one shared general viewpoint on HWAI. Currently, the NMFS's general view seems more precautionary, in that they are against all swim-with activities, even though the science is not complete on the effects of interaction. On the other hand, the USFWS is inconsistent in dealing with HWAI, and seems to take a more case-by-case approach. Some of the USFWS positions are based upon assumed human effects: for instance, the sea otter viewing guidelines are based on the assumed negative effects of energy spent evading people. But in the similar case of manatees, the USFWS has stated that swimming in close proximity to the animals is acceptable. Ragen (2007) notes that the inconsistency between how the USFWS views manatee HWAI and how the NMFS views similar interactions with other marine mammals could lead to confusion among the public. Whatever the NMFS and USFWS agree upon, perhaps more effort should be made to declare their justification for either only using demonstrated impacts or using both demonstrated and proposed impacts as a basis for decision-making.

The NMFS and USFWS should be proactive and consider proposing new regulation or codifying current guidelines for swim-with HWAI tourism, based on best available scientific knowledge, with or without a new harassment definition. These could be much like the species-specific regulations created for humpback whales in Hawaii and Alaska, and right whales in the North Atlantic (NMFS, 2005). By doing so, the NMFS could remove some of the burden of proof involved in showing harassment – instead, they would simply be enforcing a set of rules.

Unlike the current sets of NMFS general guidelines suggesting proper behaviors around marine mammals, regulations can actually be enforced. To meet this goal, coordination between the USFWS and NMFS on actions under the ESA and MMPA is absolutely essential. A large commitment of time and resources would be required from both agencies, but this still seems feasible. To facilitate interagency organization, a joint permitting and enforcement body could be formed especially for HWAI tourism (other forms of interactive tourism, such as whale-watching, might be incorporated, as well). Of course, if these rules are precautionary and based upon proposed negative impacts of HWAI tourism, the governing body should also be responsible to amend them as necessary as new scientific information is made available. The MMC is an ideal source of expert opinion and recommendations for courses of action.

Another viable action that agencies or the proposed joint tourism-monitoring body could take would be to implement a permitting system to combine both ESA section 10 and MMPA level B harassment permit procedures. Through this would require amendments to both statutes, it would be beneficial in that parties would only need to get one permit to encompass all the qualifications required by the ESA, MMPA, NEPA, and/or FMSA. Having one permitting system would also strengthen the implementing agencies' united view on HWAI. Such a permit would need to encompass at least the following:

- Thoroughly describe the action that could potentially affect the species.
- Detail the anticipated impacts of the potential take on the species and/or the habitat.
- Include information on feasible alternative courses of action, and propose methods to minimize negative impacts.
- Draft either an EA or an EIS when necessary in accordance with the NEPA.

- Propose ongoing methods to monitor and document any impacts associated with the activity.

This permit could be designed similarly to the system already enacted for temporary harassment actions – such as dredge and fill operations, marina constructions, and large boating events (FWC, 2007c) – but it would be aimed instead at the actions of HWAI tourism, which many scientists believe affects animals on a more long-term scale (Bejder & Samuels, 2003; Constantine, 1999; Constantine, 2001).

In Australia and New Zealand, permitting systems are currently used to monitor swim-with tourism and to limit the number of boats and tourists that visit marine mammals on a daily basis. Using a licensing or permitting system for HWAI tour operators in the United States would allow the NMFS and USFWS to dictate which activities are permissible around marine mammals. Compliance would be in the best interest of tour operators, because the agencies could revoke licenses when standards are not met. The licensing process should include a pre-requirement for the applicant to show how they will meet the regulations promulgated governing HWAI tourism. This would make tour operators responsible for ensuring that they do not allow tourists to harass the animals. The set of rules governing the swim-with industry could take a minimally invasive approach, and only prohibit activities that have been proven to cause negative impacts to the species (e.g., feeding dolphins). Using a more precautionary system, on the other hand, actions could be either strictly controlled or not permitted if there was any indication that it constitutes harassment to an animal.

Of course, tourists still need to be knowledgeable about the interaction prior to the activity. Mandatory education programs prior to HWAI activities remain one of the most effective methods to convey necessary information (Driscoll-Lind & Östman-Lind, 1999).

Managers and operators should always strive to increase tourists' intellectual control over the encounter by providing customers with information that will help them in understanding the species and the reasoning behind regulation. As Morris, et al. (2007) noted, the most effective education programs are those that are not simple, short interventions. So, for example, a strong reliance on one brief educational video prior to manatee encounters is not ideal. In fact, Lück (2003) found that not only do people expect education and interpretation during swim-with activities, they quite often wish they had been taught more – both about the species and about its environment. Certainly more knowledge cannot harm participants, other than taking up more time in the preparation process prior to the activity. Using this logic, extending education programs associated with dolphin and manatee tourism seems appropriate.

The constructivist theory of learning emphasizes that knowledge is gained through a process where ideas are continually being constructed and reorganized (Athman & Monroe, 2001). Anderson (1987, as cited in Athman & Monroe, 2001) proposed a 3-step method to teach conceptual change. First, students discuss issues and their own thoughts about the environment, and become aware of limitations of their own knowledge (i.e., what they have come to believe). This discussion prepares them for the second phase, where the educator explains key principles and theories (i.e., the truth). Third, students reflect on and integrate those ideas into their own personal knowledge, attitudes, and behavior. This method could easily incorporate a video into the second stage, similar to the “Manatee Manners” video to ensure consistency across all programs. Finally, a discussion or “question and answer” period should be added to ensure that all students in the program have received the appropriate benefits. This step could even be accomplished during the boat ride to the encounter. Orams (1995) also emphasizes the need for

a mechanism to assess the effectiveness of the education program. Comment cards, questionnaires, or interviews with tourists could serve this function.

If implementing agencies create a common permitting system to control swim-with tourism, it would be easy to require applicants to show how they would provide professional education to tourists. This requirement was applied to aquariums and other facilities with captive marine mammals in the 1994 amendments to the MMPA 16 U.S.C. §1361 (1994), and it seems just as important in HWAI tourism. Education program standards should be set by the NMFS and USFWS to restrict variation in the information presented to participants. All educators should be required to go through formal training (Athman & Moore, 2001). Education should be sure to point out the potential problems interaction can cause for species involved. Included in this should be a primer regarding how to behave around the animals, including, but not limited to: movement, approach, and contact. Of course, as Driscoll-Lind & Östman-Lind (1999) note, even with better education programs, “there will always be a component of the population who will only respond when they realize that the laws forbidding the harassment of marine mammals are actively being enforced.” Examples of such behavior include: tour operators illegally feeding wild bottlenose dolphins to encourage interaction, and swimmers attempting to “surf” on manatees.

A set of rules or standards for the ecotourism industry could easily be incorporated into a licensing system. If prevention of harassment is deemed the most important goal, then agencies might decide to base these rules upon the precautionary principle, on the basis that it might prove harmful to continue waiting for difficult-to-obtain scientific proof of a causal relationship between certain swim-with activities and negative impacts to the species. If such an approach is not chosen, then at a minimum, HWAI tourism activities that obviously constitute harassment

(e.g., riding manatees, feeding dolphins) could be strictly controlled or prohibited. In the same way, behaviors that put people at risk can be regulated.

Species-specific rules should always be considered, since human interaction can affect each species differently. One such species-specific action to protect against harassment is the closure of selected habitats. This may be especially important for spinner dolphins and Florida manatees, where the primary concern is human disturbance of behaviors based in certain habitats. Through the FMSA, this approach has been successful for manatees (King & Heinen, 2004), but further research may show that a larger portion of their habitat needs to be protected. Another option to consider would be the creation of buffer zones around these protected areas where swimming is prohibited and only remote viewing would be allowed. This could help alleviate the problem of people entering the sanctuary closures to interact with manatees. Similar closures have been proposed by the NMFS (2006) in the EIS drafting process to protect spinner dolphin (NMFS, 2006). Further monitoring of dolphins, public scoping, and economic analysis will all be useful in deciding whether temporal or spatial closures might be the best decision for both the needs of the dolphins and desires of people. Finally, since feeding bottlenose dolphins is already prohibited, managers need to approach this problem differently. More efforts should be made to educate the public about the harms of this behavior, and to emphasize that it is illegal. Signage and public service announcements could help to distribute this message. Enforcement efforts must be increased in areas where feeding is suspected. Also, operations that feed captive dolphins on public display should always preface the activity with the laws about feeding wild dolphins, so that the public does not leave with mixed messages about the appropriateness of this activity.

Finally, I feel that agencies should consider a set of more general HWAI tourism regulations to deal with the more universal issues of harassment that are proposed to affect HWAI target species. Many scientists feel that there seems to be enough evidence that swim-with tourism and close interaction constitute harm to the species by disturbing behavior (Ragen, 2007; Samuels, et al., 2000; Spradlin et al., 1999), but this is certainly not a uniformly held opinion. If agencies decided to adopt this precautionary view, the following general rules could serve as a template for the requirements of a HWAI licensing system. These are based upon many ideas proposed by groups such as the MMC who are concerned with swim-with tourism's effects on manatees and dolphins, as well as some of the licensing systems already in place elsewhere around the world.

***Proposed General Rules for a HWAI Permit System:***

- Each operator should be given a certain number of trips allowed per day in association with their permit, and the number of tour boats visiting an area/group of animals should be limited so that animals are not constantly exposed, surrounded, or overwhelmed.
- Approach distances should be established for each species – current guidelines for dolphins and manatees suggesting 50 yards and ~10 feet, respectively, could be codified (King & Heinen, 2004; Spradlin et al., 1999; Ragen, 2007). This might be an appropriate starting point for regulation, which could be adjusted as more research helps managers better understand and predict harassment.
- Maximum time limits for observing animals should be set.
- Touching marine mammals should be prohibited.

If agencies establish a position against touching and close proximity to marine mammals, the next logical question would be whether swim-with activities should be allowed at all. It may be difficult to create public support for a complete prohibition on swimming with marine mammals if enough people desire a swim-with experience. A prohibition on swimming with marine mammals might seem simple to enforce at first: if a person is found swimming with a marine mammal, then they are in violation. But, then, does the agency prosecute individuals who are swimming and unintentionally find themselves near or approached by marine mammals? I favor the alternative where swimmers are allowed to enter the water (in areas not protected by closure), but approach beyond a set distance is prohibited. By allowing swimming to take place, though, animal-initiated contact may cause difficulties in enforcing minimum distance rules. Both manatees and dolphins approach swimmers occasionally. Other than completely prohibiting swimming with marine mammals, the only way to ensure there is no contact – and thus, the lowest potential for harassment or harm to human or animal – would be to require tourists to slowly back away from the animal and exit the water when approached by manatees or dolphins. Another suggestion to decrease stress on populations from swimming activities is the use of alternating swimming days with boat-only days (King & Heinen, 2004). Finally, implementing new technology such as remote-access cameras could help replace the need for close interaction. SeeMore Wildlife Systems (n.d.) explains that a tourist-operated video camera “enables the public to experience wildlife in an up-close and intimate way ... right from the animal’s natural habitat.” Stationary remote-access cameras could be placed in manatee sanctuaries, on buoys in spinner dolphin habitats, or even on the bottoms of dolphin-watching boats to allow tourists a more interactive experience without the negative consequences that come with entering the water.

Whether or not some of these policy alternatives are taken, enforcement should be increased, to ensure that educational programs and tour guide interpretations lead to proper behaviors by tourists. One method to help ensure that rules are being followed is to send in agents unannounced, posing as tourists. These agents can observe if tours are following operating rules and regulations. Agents do work undercover occasionally now (Sorice et al., 2005), but increasing this form of enforcement could increase the incentives for the operators to follow the rules. If the NMFS or USFWS show a greater presence in the field, tour operators and members of the public will take regulations more seriously. King & Heinen (2004) note that since an increase in staff is not always possible due to funding restrictions, volunteers would be extremely helpful in education, monitoring, reporting harassment, and implementing any other changes put into place by agencies. By encouraging volunteer participation in the program, there is also the added benefit of increasing public ownership of conservation efforts.

To help fund some of these proposed alternatives, the NMFS and USFWS might take an approach similar to the Save The Manatees Trust Fund (STMTF), which gets almost all of its funds from boat registrations, manatee license plates, decals, and donations (FWC, 2007d). If agencies chose to create a swim-with tourism permit system, they could use permit fees, “protect marine mammals” decals and merchandise, and donations as sources of funding other than those provided by federal and state governments. To help gain public support and increase the effectiveness of restrictions on HWAI tourism, attempts should be made to increase the public’s feelings of ownership and empowerment over conservation efforts (Morris, et al., 2007). As with all management decisions, it is necessary to involve the public in the planning process for closures and regulatory measures. This could be accomplished through public hearings, scoping meetings, and comment periods. By helping to design conservation plans, people gain a better

understanding of the issues. Dolphins and manatees are already anthropomorphized heavily as “charismatic megafauna” in the tourism industry for advertising purposes, so the agencies could use this to their own benefit as well – e.g., advertising campaigns that featured animated target species giving thanks to the public for respectful treatment. Public service announcements and education programs at both the local and national level could help to enlist public support for conservation. Obviously, the Internet and mass media could also be a tremendously useful tool in promoting conservation – this is exemplified by the increase in public interest in manatee harassment after the video of the Crystal River incidents was uploaded to YouTube. No matter what course of action agencies choose, more effort should be made to clearly publicize rules and conservation information so that people become informed. Surveys of both the general public and HWAI tourists could easily be employed to determine whether people understand regulations and their reasoning.

It is important to note that the economic impacts of these policy alternatives are not easily determined. It is obvious that implementation of conservation measures would involve costs to all levels of government, as well as the private sector. But on the other hand, the conservation and protection of manatees, dolphins, and other marine mammals provides benefits in many forms, which are far less easily measured. Though integrating HWAI “experiences” into current species and ecosystem management plans will take a great deal of work (Duffus & Dearden, 1990), it seems entirely necessary as this type of wildlife tourism increases in popularity. Even with the many potential negative consequences of HWAI, if a strong effort is made to mitigate these problems, it has the capacity to serve as a powerful tool to promote sustainable wildlife management and conservation.

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## LITERATURE CITED:

- Aipanjiguly, S., Jacobson, S.K., and R. Flamm. (2003). Conserving manatees: Knowledge, attitudes, and intentions of boaters in Tampa Bay, Florida. *Conservation Biology*, 17(4), 1098-1105.
- Archer, J. (1997). Why do people love their pets? *Evolution and Human Behavior*, 18, 237-259.
- Athman, J.A., and M.C. Monroe. (2001). *Elements of effective environmental education programs*. Recreational Boating & Fishing Foundation. Retrieved October 2, 2007, from <http://www.rbff.org/educational/BPE3.pdf>
- Barcott, B. (2007). The rancher and the grizzly: a love story. *OnEarth Magazine, Winter*. Retrieved September 25, 2007, from <http://www.nrdc.org/onearth/07win/grizzly1.asp>
- Behrendt, B. (2006, March). *Manatee petting: Just good fun, or marine harassment?* St. Petersburg Times. Retrieved September 25, 2007, from [http://www.sptimes.com/2006/03/19/Tampabay/Manatee\\_petting\\_\\_Just.shtml](http://www.sptimes.com/2006/03/19/Tampabay/Manatee_petting__Just.shtml)
- Bejder, L., Samuels, A., Whitehead, H., Gales, N., Mann, J., Connor, R., Heithaus, M., Watson-Capps, J., Flaherty, C., and M. Krützen. (2006). Decline in relative abundance of bottlenose dolphins exposed to long-term disturbance. *Conservation Biology*, 20(4), 1791-1798.
- Chris, C. (2006). *Watching Wildlife*. Minneapolis: University of Minnesota Press. 269 pp.
- Colson, T. (2007). *Crystal river manatee abuse*. (Video). Retrieved March 6, 2007, from [http://youtube.com/watch?v=iDC2kM1ca\\_A](http://youtube.com/watch?v=iDC2kM1ca_A)
- Constantine, R. (1999). Affects of tourism on marine mammals in New Zealand. Department of Conservation – New Zealand. *Science for Conservation*, 106, 1-59.
- Constantine, R. (2001). Increased avoidance of swimmers by wild bottlenose dolphins (*Tursiops truncatus*) due to long-term exposure to swim-with-the-dolphin tourism. *Marine Mammal Science*, 17(4), 689-702.
- Curtin, S. (2006). Swimming with dolphins: a phenomenological exploration of tourist recollections. *International Journal of Tourism Research* 8, 301-315.
- Danil, K., Maldini, D., and K. Marten. (2005). Patterns of use of Maku'a Beach, O'ahu, Hawai'i, by spinner dolphins (*Stenella longirostris*) and potential effects of swimmers on their behavior. *Aquatic Mammals*, 31(4), 403-412.
- Duffus, D.A., and P. Dearden. (1990). Non-consumptive wildlife-oriented recreation: a conceptual framework. *Biological Conservation*, 53(3), 213-231.

- Endangered Species Act (ESA). 16 U.S.C. §§1531-1534 (1973 & Supp. 1988).
- Florida Fish and Wildlife Conservation Commission (FWC). (2007a). *News release: Wildlife authorities move to halt manatee harassment*. Retrieved September 20, 2007, from <http://myfwc.org/whatsnew/07/northcentral/manateeharass.html>
- Florida Fish and Wildlife Conservation Commission (FWC). (2007b). *Manatee viewing guidelines*. Retrieved September 20, 2007, from <http://www.myfwc.com/manatee/information/guide.htm>
- Florida Fish and Wildlife Conservation Commission (FWC). (2007c). *Permit Review*. Retrieved November 12, 2006, from <http://myfwc.com/manatee/permits/>
- Florida Fish and Wildlife Conservation Commission (FWC). (2007d). *Florida manatee management plan: Trichechus manatus latirostris*. Retrieved September 25, 2007, from <http://myfwc.com/imperiledspecies/plans/Manatee-Mgmt-Plan.pdf>
- Florida Manatee Sanctuary Act (FMSA). Fla. Stat. §370.12(2) (1978 & Supp. 1995).
- Gansmo, H.J. (n.d.). *Different theories on the psycho-social meaning of holidaying and tourism compared: What does Urry's concept 'the tourist gaze' add to previous approaches?* Assignment in “Sociology of Everyday Culture” at University of East London. Retrieved February 6, 2006, from <http://www.ntnu.no/sts/helen/tourist.htm>
- Hess, M.J. (2000). *Endangered Species Act Overview*. State Bar of Texas Animal Law Section. Retrieved November 15, 2007, from <http://www.animallawsection.org/endangered.php>
- Hogarth, W.T. (2003). *Testimony of Dr. William T. Hogarth, Assistant Administrator for Fisheries National Marine Fisheries Service*. Before the Committee on Resources, U.S. House of Representatives. Retrieved October 29, 2006, from <http://www.legislative.noaa.gov/Testimony/050603hogarth.pdf>.
- H.R. 4075. (2005). *Marine Mammal Protection Act Amendments of 2005*. (As proposed, not as passed in 2006). 109th Congress, §515. Retrieved November 1, 2006, from [http://www.nmfs.noaa.gov/pr/pdfs/laws/mmpa\\_bill.pdf](http://www.nmfs.noaa.gov/pr/pdfs/laws/mmpa_bill.pdf)
- Jarvis, C. and S. Ingleton. (2001). *Dolphin Mania*. Guide for the documentary film. Produced by Australian Teachers of Media (ATOM) Incorporated. Issue 28 – Australian Screen Education. Retrieved July 20, 2007, from <http://www.metromagazine.com.au/metro/frm.htm?highlight=2>
- Johnson, T. (2006). Responsible wildlife viewing in Alaska. Alaska Sea Grant Marine Advisory Program. University of Alaska Fairbanks, School of Fisheries and Ocean Sciences. *Alaska Seas & Coasts: Marine Issues for Alaska's People, 2*. Retrieved

- November 2, 2007, from  
[http://alaska.fws.gov/fisheries/mmm/seaotters/pdf/ak\\_seas\\_coasts\\_0306.pdf](http://alaska.fws.gov/fisheries/mmm/seaotters/pdf/ak_seas_coasts_0306.pdf)
- King, J.M. and J.T. Heinen. (2004). An assessment of the behaviors of overwintering manatees as influenced by interactions with tourists at two sites in central Florida. *Biological Conservation*, 117, 227-234.
- Lück, M. (2003). Education on marine mammal tours as agent for conservation – but do tourists want to be educated? *Ocean & Coastal Management*, 46, 943-956.
- Marine Mammal Commission (MMC). (2007a). *About the Marine Mammal Commission*. Retrieved October 26, 2007, from <http://www.mmc.gov/about/>
- Marine Mammal Commission (MMC). (2007b). *Annual report to Congress – 2006*. Retrieved November 2, 2007, from <http://www.mmc.gov/reports/annual/pdf/2006annualreport.pdf>
- Marine Mammal Commission (MMC). (2006). *Annual report to Congress – 2005*. Retrieved September 20, 2007, from <http://www.mmc.gov/reports/annual/pdf/2005annualreport.pdf>
- Marine Mammal Protection Act (MMPA) 16 U.S.C. §§1361-1407 (1972 & Supp. 1994).
- Mitman, G. (1999). *Reel Nature*. Cambridge: Harvard University Press. 263 pp.
- Morris, J.K., Jacobson, S.K., and R.O. Flamm. (2007). Lessons from an evaluation of a boater outreach program for manatee protection. *Environmental Management*, 40, 596-602.
- National Marine Fisheries Service (NMFS). (2005). Protecting spinner dolphins in the Main Hawaiian Islands from human activities that cause “take,” as defined in the Marine Mammal Protection Act and its implementing regulations, or to otherwise adversely affect the dolphins. *Federal Register*, 70(237), 73426-73429.
- National Marine Fisheries Service (NMFS). (2006). Protection of marine mammals: Notice of intent to prepare an Environmental Impact Statement. *Federal Register*, 71(190), 57923-57926.
- National Marine Sanctuaries (NMS). (2007a). *Ocean Etiquette*. National Oceanic and Atmospheric Administration. Retrieved September 25, 2007, from <http://www.sanctuaries.noaa.gov/protect/oceanetiquette.html>
- National Marine Sanctuaries (NMS). (2007b). *Dolphin SMART*. National Oceanic and Atmospheric Administration. Retrieved September 25, 2007, from <http://www.sanctuaries.noaa.gov/dolphinSMART/details.html>
- Newsome, D., Dowling, R., & S. Moore. (2005). *Wildlife Tourism*. Tonawanda: Channel View Publications. 299 pp.

- Office of Protected Resources (OPR). (n.d. a). *Responsible Marine Wildlife Viewing*. NOAA – National Marine Fisheries Service. Retrieved March 30, 2007, from <http://www.nmfs.noaa.gov/pr/education/viewing.htm>
- Office of Protected Resources (OPR). (n.d. b). *Incidental Take Authorizations*. NOAA – National Marine Fisheries Service. Retrieved November 2, 2007, from <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>
- Office of Protected Resources (OPR). (n.d. c). *Protect Dolphin Campaign*. NOAA – National Marine Fisheries Service. Retrieved March 30, 2007, from <http://www.nmfs.noaa.gov/pr/education/protectdolphins.htm>
- Office of Protected Resources (OPR). (n.d. d). *Southeast Region Marine Mammal & Sea Turtle Viewing Guidelines*. NOAA – National Marine Fisheries Service. Retrieved March 30, 2007, from <http://www.nmfs.noaa.gov/pr/education/southeast/guidelines.htm>
- Orams, M.B. (1995). Using interpretation to manage nature-based tourism. *Journal of Sustainable Tourism*, 4(2), 81-94.
- Orams, M.B. (1997). Historical accounts of human-dolphin interaction and recent developments in wild dolphin based tourism in Australasia. *Tourism Management*, 18(5), 317-326.
- Orams, M.B. (2002). Feeding wildlife as a tourism attraction: a review of issues and impacts. *Tourism Management*, 23, 281-293.
- Parque Nacional Galápagos. (n.d.). *Rules for visitors to the Galapagos Islands*. Retrieved October 30, 2007, from <http://www.galapagospark.org/png/interna.php?SECCIONPAS=Preingreso>
- Paquette, S.R. (2007). Importance of the “crocodile hunter” phenomenon. *Conservation Biology*, 21(1), 6.
- Ragen, T.J. (2007). *Marine Mammal Commission’s manatee harassment letter to Sam D. Hamilton, Regional Director, Southeast Region, U.S. Fish and Wildlife Service*. Retrieved March 24, 2007, from <http://www.mmc.gov/letters/pdf/2007/31407Hamilton.pdf>
- Reynolds, P.C. and D. Braithwaite. (2001). Towards a conceptual framework for wildlife tourism. *Tourism Management*, 22, 31-42.
- Ryan, C. and K. Harvey. (2000). Who likes saltwater crocodiles? Analysing socio-demographics of those viewing tourist wildlife attractions based on saltwater crocodiles. *Journal of Sustainable Tourism*, 8(5), 426-433.
- Samuels, A., Bejder, L., and S. Heinrich. (2000). *A Review of the Literature Pertaining to Swimming with Wild Dolphins*, prepared for the Marine Mammal Commission.

- Retrieved March 6, 2007, from  
<http://www.mmc.gov/reports/contract/pdf/samuelsreport.pdf>
- Samuels, A. and L. Bejder. (2004). Chronic interaction between humans and free-ranging bottlenose dolphins near Panama City Beach, Florida, USA. *Journal of Cetacean Research and Management* 6(1), 69-77.
- Sanders, C.R. (2003). Actions speak louder than words: Close relationships between humans and nonhuman animals. *Symbolic Interaction*, 26,(3), 405-426.
- Save the Manatee Club (SMC). (2007a). *Help End Manatee Harassment in Citrus County, Florida!* Retrieved June 10, 2007, from  
[http://www.savethemanatee.org/ta\\_harassment.htm](http://www.savethemanatee.org/ta_harassment.htm)
- Save the Manatee Club (SMC). (2007b). *Manatee protections to be cut under Bush plan: Downlisting comes despite record number of manatee fatalities in 2006.* Retrieved June 10, 2007, from [http://savethemanatee.org/news\\_pr\\_bush\\_plan\\_4-07.htm](http://savethemanatee.org/news_pr_bush_plan_4-07.htm)
- Save the Manatee Club (SMC). (2007c). *State Agency Postpones Endangered Manatee's Reclassification.* Retrieved September 25, 2007, from  
[http://www.savethemanatee.org/ta\\_downlisting\\_9-11-07.html](http://www.savethemanatee.org/ta_downlisting_9-11-07.html)
- SeeMore Wildlife Systems. (n.d.). *Remote wildlife viewing systems.* Retrieved June 10, 2007, from <http://www.seemorewildlife.com/systemuses.php>
- Shiloh, S., Sorek, G., and J. Terkel. (2003). Reduction of state-anxiety by petting animals in a controlled laboratory experiment. *Anxiety, Stress, and Coping*, 16(4), 387-395.
- Sorice, M.G. Shafer, C.S., and D. Scott. (2003). Managing endangered species within the use/preservation paradox: Understanding and defining harassment of the west indian manatee (*Trichechus manatus*). *Coastal Management*, 31, 319-338.
- Sorice, M.G., Shafer, C.S., and R.B. Ditton. (2005). Managing endangered species within the use/preservation paradox: the Florida manatee (*Trichechus manatus*) as a tourism attraction. *Environmental Management*, 37(1), 69–83.
- Spradlin, T.R., Drevenak, J.K., Terbush, A.D., & E.T. Nitta. (1999). *Interactions between the public and wild dolphins in the United States: Biological concerns and the Marine Mammal Protection Act.* Presented at the Wild Dolphin Swim Program Workshop, 13<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, November 28, 1999.
- Spradlin, T.R., Barre, L.M., Lewandowski, J.K., & E.T. Nittia. (2001). *Too close for comfort: Concern about the growing trend in public interactions with wild marine mammals.* Presented at the Viewing Marine Mammals Workshop, 14<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, November 28, 2001.

- Stewart, K.L. (2006). *Human-dolphin encounter spaces: a qualitative investigation of the geographies and ethics of swim-with-the-dolphins programs*. PhD dissertation submitted to the Department of Geography, Florida State University. Retrieved September 30, 2007, from <http://etd.lib.fsu.edu/theses/available/etd-03092006-162411/unrestricted/31406KLSdissertation.pdf>
- Trone, M., Kuczaj, S., and M. Solangi. (2005). Does participation in dolphin-human interaction programs affect bottlenose dolphin behaviour? *Applied Animal Behaviour Science*, 93, 363-374.
- United States Fish and Wildlife Service (USFWS). (2007). *West Indian manatee (Trichechus manatus) 5-year review: Summary and evaluation*. USFWS Southeast Region. Retrieved September 10, 2007, from <http://www.fws.gov/northflorida/Manatee/2007%205-yr%20Review/2007-Manatee-5-Year-Review-Final-color-signed.pdf>
- United States Fish and Wildlife Service (USFWS). (2005). *Habitat conservation plans: section 10 of the Endangered Species Act*. Retrieved November 1, 2007, from [http://www.fws.gov/endangered/pdfs/HCP/HCP\\_Incidental\\_Take.pdf](http://www.fws.gov/endangered/pdfs/HCP/HCP_Incidental_Take.pdf)
- United States Fish and Wildlife Service (USFWS). (2003). *Living with Grizzlies*. Retrieved November 2, 2007, from [http://www.fws.gov/mountain%2Dprairie/species/mammals/grizzly/close\\_encounters.pdf](http://www.fws.gov/mountain%2Dprairie/species/mammals/grizzly/close_encounters.pdf)
- United States Fish and Wildlife Service (USFWS). (1995). *West Indian manatee (Trichechus manatus) (Endangered Species): Wildlife species information*. U.S. Fish and Wildlife Service. Retrieved September 25, 2007, from [http://www.fws.gov/species/species\\_accounts/bio\\_mana.html](http://www.fws.gov/species/species_accounts/bio_mana.html)
- United States Fish and Wildlife Service (USFWS). (n.d.). *Sharing the near-shore ecosystem with sea otters in Alaska*. Retrieved November 2, 2007, from [http://alaska.fws.gov/fisheries/mmm/seaotters/pdf/Sea\\_Otter\\_Appreciation\\_AMNWR\\_06.pdf](http://alaska.fws.gov/fisheries/mmm/seaotters/pdf/Sea_Otter_Appreciation_AMNWR_06.pdf)