EVALUATING THE EXTENT OF PRESSURE AND LEVEL OF HARASSMENT EXERTED ON BOTTLENOSE DOLPHINS (*Tursiops truncatus*) DURING “SWIM-WITH” TOURS IN PANAMA CITY BEACH, FL

by

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Abstract

Federal and state management agencies have attempted to address the harassment and illegal feeding of wild dolphins in the United States, but few studies have evaluated the efficacy of these interventions. In 1998, Samuels and Bejder conducted a study contracted by the Marine Mammal Commission to document the number of dolphins affected by illegal feeding and harassment in Panama City Beach, FL. Since the results of their study, more resources have been allocated towards increasing the presence of undercover officers on dolphin tour boats, fines have been issued for counts of illegal feeding, and there has been an increase in education and outreach efforts.

The present study reevaluates the current level of harassment and illegal feeding towards dolphins in Panama City Beach, FL, which can be used as a comparison to the work of Samuels and Bejder and subsequent management actions. In the study, I conducted 10 hours of detailed observations over five days to quantify the number of vessels and swimmers surrounding dolphins during tours, assess the type and frequency of harassment behaviors in the presence and absence of Marine Patrol vessels, and discuss dolphin responses to harassment behavior.

On average, I recorded 1.4 boats, 1.1 jet skis and 0.7 swimmers surrounding an individual dolphin. The most common harassment behaviors included chasing, luring and corralling dolphins. The frequency of harassment was significantly greater when the Marine Patrol was absent; I observed 75 harassment behaviors in their absence and only six in their presence. Lastly, most dolphin responses observed were expected from the conditioned status of that animal.

These findings suggest that dolphins are rarely alleviated from anthropogenic pressure during tours and that harassment and illegal feeding is still prevalent, however, significantly lessened in the presence of Marine Patrol. These results and conclusions offer a benchmark to inform future management actions under the Marine Mammal Protection Act.
I. Introduction

Over the past couple of decades, there has been a growing trend in marine tourism worldwide. In particular, cetacean-based tourism was figured to be a $US1 billion dollar industry in 2001, offered in 87 countries, with more than 9 million people participating annually (Hoyt 2001). There are three primary forms of tourism directed at cetaceans: land-based, vessel-based, and swim-with tours (National Marine Fisheries Service [NMFS], 2002). All three types of tourism have the capacity to educate people about wildlife conservation and the marine environment, but they have also spurred concern about the effect they might impose on the animals being viewed. In the Florida Panhandle and Gulf Coast, most tourism activities are directed towards viewing bottlenose dolphins (Tursiops truncatus) in their natural habitat (Constantine 2001).

Wild bottlenose dolphins are protected under the Marine Mammal Protection Act (MMPA), which is implemented by the National Marine Fisheries Service (NMFS) Protected Resources Division. The MMPA prohibits, with some exceptions, the “take” of a marine mammal in the wild, including feeding, attempting to feed, and harassment (50 CFR 216.3). Harassment is further separated into two levels: Level A and Level B. Level A harassment is “any act of, pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild” (50 CFR 216.3). Level B is “any act of, pursuit, torment, or annoyance which 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” (50 CFR 216.3).
Specifically, human behaviors that are considered Level B Harassment include: food provisioning; petting, touching, or attempting to pet/touch a wild dolphin; luring animals by tapping, splashing, or offering food or a non-food object; pursuing animals in a motorized or non-motorized vessel, swimming or chasing; and operating a vessel in such a way that disrupts the natural behavior or path of an animal (NMFS letter to Operators 2013). There is considerable evidence suggesting that human interactions with dolphins during vessel-based and swim-with tours can be harmful, by disrupting an animal’s natural behavior, increasing their risk of injury, or compromising their health (Bryant 1994; Buckstaff 2004; Nowacek et al 2001; Samuels & Bejder 2004; Wells & Scott 1997; Orams et al. 1996).

An animal’s natural behavior may be disrupted due to the presence of boat traffic. Animals have been observed to dive for longer durations, increase swim speed, change headings, and decrease interanimal distance and resting behavior as boat numbers increase or approach a dolphin/s (Constantine et al. 2004; Ng & Leung 2003; Nowacek et al. 2001). Dolphin’s acoustic behavior can also be altered as a result of anthropogenic noise pollution from high densities of boat traffic. In Sarasota Bay, FL animals were found to whistle significantly more often at the onset of a vessel approach. This response may be a defensive behavior, or simply compensate for a louder environment (Buckstaff 2004; Nowacek et al. 2001).

Increases in injury may result from a dolphin’s dependency on food provisioned resources. When humans feed dolphins, they tend to loose their natural fear of people and approach boats more closely, increasing their risk of injury from boat propellers or hulls (Wells & Scott 1997). Additionally, contact with fishing vessels may lead to increased
risks of entanglement in fishing gear and retaliatory acts from fisherman for stealing bait off their lines (Wells & Scott 1994; Wells et al. 1998; Orams et al. 1996). Food provisioning may also increase the risk of injury towards humans. There have been reports that some conditioned dolphins have become aggressive towards humans in the water when no food is offered during an encounter (Orams et al. 1996).

Lastly, human interactions with dolphins may lead to compromised health and increased risks of mortality (Cunningham-Smith et al. 2006). One study observed humans feeding wild dolphins pretzels, crackers and candy bars – food items outside a dolphin’s natural diet of fish (Barros & Wells 1998; Bryant 1994). In another instance, a NOAA enforcement officer responded to a dolphin stranding where cheese curls and pieces of hot dog were found in the dolphin’s stomach contents (Elizabeth Nelson cited in blog.al.com, 2013). Harassment through food provisioning affects both adults and calves (Anderson 1994). Food provisioned females tend to provide less maternal care to their calves, resulting in higher mortality rates, compared to calves born to non-provisioned females (Bryant 1994; Mann et al., 2000; Mann and Kemps, 2003).

There is enforcement of the MMPA and a duty to protect marine wildlife and habitat on a federal and state level. NOAA’s Office of Law Enforcement (OLE) is responsible for ensuring compliance with the nation’s legislative acts and has the power to take enforcement action when the MMPA is violated (NOAA, 2014). The Cooperative Enforcement Program within OLE aims to increase living marine resource conservation and protection by authorizing state officers to enforce federal laws and regulations.

One tool used to accomplish this goal is through Joint Enforcement Agreements (JEAs). These are formal operation plans that transfer funds to state law enforcement
agencies to uphold and support federal regulations (NOAA, 2014). Currently, there are 27 JEAs with states, territories, and commonwealths. A JEA exists between the OLE and Florida Fish and Wildlife Commission (FWC), allowing Florida state officers to enforce provisions of the MMPA in Florida’s waters. Additionally, both state and federal agencies partner to provide education and community outreach programs, especially regarding illegal feeding and harassment.

There is still widespread ambiguity concerning the definition of harassment, particularly what is and is not considered Level B harassment (Kelly et al. 2004). The list of Level B harassment activities above is considered illegal, however stakeholder groups impose their own values in interpreting and applying the definition (Sorice et al. 2003). Rather than consider harassment to result in the disruption of an animal’s natural behavior, such as its course of travel, for example, some tour operators are inclined to view harassment as observable, physical harm to an animal (Sorice et al. 2003). Thus, most tour operators only consider Level A activities (ones that may result in harm) to constitute harassment. In addition, it is important to note that any Level B harassment activity is considered illegal only if it elicits a change in a dolphin’s natural behavior. If a law enforcement officer is unable to discern that a particular human action elicited a definite change in a dolphin’s behavior, no case for a violation can be made. Thus, from a law enforcement agency’s perspective, there is a large “gray” area in the definition of and ability to enforce the MMPA.

For over two decades, Panama City Beach has been one of the most notorious hotspots in the southeast for illegal feeding and harassment of wild bottlenose dolphins (J. Powell, NOAA Office of Protected Resources, personal communication). In 1993, it
was estimated that 124 resident animals reside in St. Andrew Bay; a semi-enclosed body of water just inland of Panama City (NMFS, 2012). This group of animals constitutes a “community” of dolphins, which share large portions of their ranges, exhibit similar genetic profiles, and frequently interact with one another in (NMFS, 2012). On land, there are approximately 21-25 vessel-based and swim-with tour operators that offer daily dolphin excursions to view dolphins right outside St. Andrew Bay, along the coastline of Panama City (Personal experience, Machernis 2012).

Due to concern over the effects of these interactions on both dolphins and human safety, in 1998 the Marine Mammal Commission contracted a study to document the number of dolphins affected by illegal feeding and harassment in Panama City (Stewart 2006; Samuels & Bejder 1998). The conclusions of this field study suggested that the natural behaviors and population dynamics of wild dolphins were highly disrupted by extensive habituation achieved through considerable human contact and food provisioning (Samuels & Bejder 1998).

As more dolphins become habituated to humans and the number of tourists and commercial businesses increases, federal and state agencies have attempted to control the situation. In 2013, FWC Maj. Bruce Cooper, who oversees enforcement in the Panhandle, stated that the FWC had set aside $10,000 to place undercover officers on tour boats to assess whether or not operators were adhering to the MMPA (Valerie Garman, The News Herald, 4/10/13). Between 2011 and 2012, three tour operator companies were fined for illegally feeding wild dolphins. One company was charged with two counts of illegal feeding, resulting in a $10,000 fine, while the other two companies were fined $5,000 for single counts (Valerie Garman, The News Herald, 7/22/13). NOAA has continued to
supplement such enforcement actions with outreach programs, geared towards educating the public through a series of workshops, signs, brochures, and banner plane flyovers delivering the “don’t feed wild dolphins” message (J. Powell, NOAA Office of Protected Resources, personal communication).

When management actions are taken, it is necessary to monitor and evaluate their success and efficacy. Therefore, I undertook a systematic study to describe the current nature and extent of dolphin harassment and illegal feeding in Panama City that could serve as a comparison to the work of Samuels & Bejder (2004) and to support future management decisions. The present study quantifies the number of vessels and swimmers present around dolphins during vessel-based and swim-with tours, assesses the type and occurrence of harassment behaviors observed in the presence and absence of a Marine Patrol boat, and discusses the response of bottlenose dolphins to harassment activity in Panama City.

II. Methods

Scouting Trip

In June 2013, I conducted a four-day scouting trip to Panama City Beach, FL to test data collection methodology. I collected data onboard four commercial tour boats: three swim-with and one vessel-based tour. The number of passengers onboard ranged from 3 to approximately 75 people. Tour operators were not aware that I was observing interactions between their vessel and clients and dolphins. During each trip, I recorded information on the number of people in the water, vessels, jet-skis, and dolphin group size on a mobile device every 5 minutes. I also recorded observations of feeding and
harassment behaviors, together with compliance with the Southeast Regional Viewing Guidelines. After the completion of the tour, I transferred information from the mobile device and recollection to a data sheet.

The scouting trip revealed significant challenges in data collection. First, there was limited time in which to collect data. I was limited to collecting approximately 30 minutes of data on each tour when the vessel located a group of dolphins; the rest of the time was spent snorkeling or riding along the coast. Additionally, my ability to view dolphins was often obstructed by other tour vessels or other passengers onboard, especially on larger tour boats. It was challenging to collect data on harassment behaviors exhibited by other vessels and jet skis in the vicinity, while collecting data on the behavior of the focal vessel. Lastly, interactions between vessels, jet skis, swimmers, and dolphins were very dynamic. My data collection sheet did not allow me to record and accurately represent the fluidity of the interactions.

To address these limitations, I modified my data recording protocol. I switched to using a jet ski as a data collection platform and recording data verbally and visually on a GoPro HERO3 mounted to a head strap.

Observation methodology

During the summer of 2013, I spent 5 days between the 15-21st of July searching for bottlenose dolphins near Panama City Beach, FL. A Marine Patrol boat was present on Days 2 and 3 of the study period. I made all observations off St. Andrew State Park and Shell Island in the Gulf of Mexico. I collected data onboard a rental jet ski during either morning or afternoon sessions lasting approximately 3-4 hours each. The rental
company was aware that I was conducting a study on dolphin behavior. I mounted a
GoPro HERO3 to a headstrap to collect data. Recording was temporarily paused during
periods of searching for dolphins and resumed upon finding them.

Part I: Quantifying the extent of pressure exerted on dolphins during interactions

To quantify the number of boats, jet skis, and swimmers present around dolphins
during tour interactions, I recorded point samples throughout the observation period. I
recorded the number of dolphins, boats, jet skis, and people in the water every 5 minutes.
I calculated the average, standard deviation, and standard error for each of the variables
for each day separately. In addition, summary statistics were calculated by combining
samples from all five days.

There were some instances when boats, jet skis, or swimmers were present, but no
dolphins were observed in the vicinity. The goal of my analysis was to quantify the extent
of pressure exerted on dolphins, so only point samples including the presence of dolphins
were used.

To examine whether the presence of a Marine Patrol boat affected the number of
boats, jet skis, and swimmers around dolphins, samples from Days 2 and 3 were
combined. I hypothesized that the Marine Patrol boat would not have a significant effect
on the number of boats, jet skis, and swimmers in the water near a dolphin. To test this
prediction, I conducted a student’s t-test for all variables on Days 2 and 3 in the presence
and absence of a Marine Patrol boat.
Part II: Assessing the type and frequency of harassment behaviors in the presence and absence of Marine Patrol

I used a continuous observation method to collect data on interactions between dolphins and boats, jet skis, and swimmers. I followed tour boats and recorded data verbally and visually on the GoPro HERO3. A list of harassment activities was used to describe the nature of the interactions. The list was based on observations during the scouting trip and NMFS list of illegal and harmful activities towards wild dolphins (NMFS letter to operators 2013). The primary harassment behaviors on the list included: corolling, chasing, luring, feeding, touching, instigating wake riding, and a J-hook approach. The frequency of harassment behaviors I observed was recorded for each day separately and combined for all five days.

To determine whether the presence of a Marine Patrol boat had an effect on the type and frequency of harassment behavior, I summed the number of times each harassment behavior was observed for Days 2 and 3, contrasting between periods when a patrol boat was present and when it was absent. I hypothesized that the presence of a Marine Patrol boat would have a significant effect on the frequency of harassment behaviors observed. To test this prediction, I conducted a chi-squared analysis to test for a difference in the frequency of all harassment behaviors combined in the presence and absence of a patrol boat.

Part III: Discussing dolphin response behaviors to harassment activity

Wild dolphins can be disturbed by the presence of people or watercraft, especially when an animal is feeding or resting. When too many people or watercraft are in the
vicinity of a dolphin, approach quickly or noisily, or remain nearby for a period of time, dolphins may exhibit disturbance behaviors, including: increased swim speed, changes in swim direction, repeated tail slaps, or changes in group composition (NOAA, 2006). Conversely, dolphins that have been exposed to chronic human interaction and food provisioning may respond differently to the presence of people or watercraft. Dolphin behaviors indicative of human habituation and food dependency include: remaining close to people in the water or vessels, begging with their head out of the water and mouth open at the side of a vessel or a person, or accepting food handouts (Samuels & Bejder 2004).

In this study, dolphin responses to all human harassment behaviors or feeding were opportunistically recorded. Due to brackish water conditions throughout the study, underwater visibility of dolphin behavior was extremely limited, so observations were recorded mainly when dolphins were at the surface. I calculated the number of dolphin responses to each type of harassment behavior for all five days combined. When it was possible to determine the “type” of dolphin involved in the encounter, I separated dolphin response by the conditioned status of each animal. I then compared the observed dolphin response to the response we would expect from the conditioned status of that animal.

III. Results

Over the course of 5 days, a total of 14 hours were spent searching for dolphins near Panama City Beach. During that time, I observed dolphins for 7.85 hours; 6.77 of those hours were observed in the absence of state Marine Patrol vessels and 1.08 hours were observed when a Marine Patrol vessel was present (Table 1). A Marine Patrol vessel
was present for 21 min on Day 1, but no dolphins were observed during that period, so the effect of enforcement on that day was not considered in the analysis.

Table 1. Total time dolphin/s were present in the presence and absence of Marine Patrol

<table>
<thead>
<tr>
<th>Days</th>
<th>Marine Patrol Absent (min)</th>
<th>Marine Patrol Present (min)</th>
<th>Total Observation Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>54</td>
<td>0</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>111</td>
<td>55</td>
<td>166</td>
</tr>
<tr>
<td>3</td>
<td>65</td>
<td>10</td>
<td>75</td>
</tr>
<tr>
<td>4</td>
<td>113</td>
<td>0</td>
<td>113</td>
</tr>
<tr>
<td>5</td>
<td>63</td>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td><strong>6.77</strong></td>
<td><strong>1.08</strong></td>
<td><strong>7.85</strong></td>
</tr>
</tbody>
</table>

Part I: Quantifying the extent of pressure exerted on dolphins during interactions

I calculated the mean number of dolphins, boats, jet skis, and swimmers for Days 1-5 combined to assess the extent of pressure exerted on dolphins during tours. Only point samples in which at least one dolphin was present were considered in the analysis. The mean number of dolphins was 2.77 (SD = 1.85, range = 1-7); the number of boats was 3.81 (SD = 2.48, range = 1-10); the number of jet skis was 3.06 (SD = 4.13, range = 0-17); and the number of swimmers in the water was 2.00 (SD = 3.86, range = 0-20) (Figure 1).
I calculated the mean number of boats, jet skis, and swimmers for Days 2 & 3 in the presence and absence of Marine Patrol. Means were calculated from 65 minutes of observation time in the presence of Marine Patrol, and 174 minutes in the absence of Marine Patrol. There was a significant difference in the number of boats in the presence of Marine Patrol (3.23 ± 2.17) and in their absence (5.08 ± 2.42; \( t_{23} = -2.56, p = 0.0173 \)). There was also a significant difference in the average number of swimmers when Marine Patrol was present (0.46 ±1.66) and absent (3.00 ± 4.62; \( t_{46} = -2.83, p = 0.007 \)) (Figure 2).
Part II: Assessing the type and frequency of harassment behaviors in the presence and absence of Marine Patrol

Over five days of observation, I observed feeding and the following harassment behaviors: corralling, chasing, luring, touching, instigating wake riding, and a J-hook approach. Harassment behaviors were further categorized based off a letter written by the Protected Resources Division of the Southeast Regional Office to Panama City Businesses in 2013. The specific behaviors are as follows: corralling by vessel or swimmer; chasing by vessel or swimmer; luring by: splashing the water, tapping the side of a boat, using a non-food object (e.g. jet ski kill cord, sunglasses, fish replica), using food; touching; instigating wake riding; and J-Hook approach.

I recorded feeding and harassment behaviors during the entire observation period, regardless of the presence of the Marine Patrol. There were three incidences of illegal
feeding. The most commonly observed harassment behaviors (with frequencies of 20 times or greater) included: chasing by vessel, luring by splashing the water, and coralling by vessel. The frequencies of these behaviors were 29, 25, and 23 respectively. (Figure 3).

A chi-square test was used to evaluate differences in the frequency of harassment behaviors in the presence and absence of Marine Patrol on Days 2 & 3 of the study. The frequency of all harassment behaviors observed in the absence of Marine Patrol was significantly greater than those observed in the presence of Marine Patrol ($\chi^2 = 19.32$, d.f. = 1, $p < 0.001$). Seventy-five harassment behaviors were observed in their absence and only six were observed in their presence (Figure 4).
There was also a marked difference in the frequency of individual harassment behaviors in the presence and absence of Marine Patrol. On Days 2 & 3, in the presence of Marine Patrol, only four harassment behaviors were exhibited by tour operators and tourists: chasing by vessel, chasing by swimmers, luring by splashing, and instigating wake riding. However, these behaviors occurred much less frequently than they did in the absence of Marine Patrol (Figure 5).
Part III: Discussing dolphin response behaviors to harassment activity

Dolphin responses to specific incidences of harassment and feeding included: tail slap, change in swim direction, change in swim speed, wake ride, and split in group composition. Response behaviors indicative of chronic human interaction included: approach and remain close to a vessel or swimmer, and exhibit a head up, mouth open posture at the side of a vessel or swimmer.

Harassment that elicited dolphin responses in at least half of observed incidences included: feeding, instigate wake riding, touch, chase by swimmers, and lure by a non-food object. Of the three incidences of observed illegal feeding, dolphins responded twice with a head up, open mouth posture and once by approaching a vessel. There were five incidences of vessels instigating wake riding; each time dolphins were observed engaging

Figure 5. Frequency of harassment behaviors observed on Days 2 & 3 in the presence and absence of Marine Patrol in Panama City Beach, FL.
in this activity. In the four times people touched or attempted to touch an animal, I observed a dolphin’s response three times: once approaching a person, once with a head up, open mouth posture, and once changing direction. There were 13 observations of swimmers chasing an individual or group of dolphins. Dolphin responses were observed seven times; during six of those occurrences a dolphin changed direction and on one occasion, the dolphin approached a swimmer in the water. People used a non-food object to lure a dolphin four times; during two of the observed responses, one included a head up, open mouth posture and on a second occasion the dolphin approached the vessel.

Observed dolphin responses were compared to a response expected from the conditioned status of that animal. Of the 22 potentially conditioned responses that were observed during the study, 18 were exhibited from known conditioned dolphins and four were observed from non-conditioned dolphins. From the 34 non-conditioned dolphin responses that were recorded, four were from conditioned animals and 30 were exhibited by non-conditioned dolphins (Figure 6).
IV. Discussion

In a reevaluation of harassment and illegal feeding of wild bottlenose dolphins in Panama City, FL my findings show that dolphins were rarely alleviated from anthropogenic pressure during tours and that incidences of harassment and feeding were still prevalent, but significantly less in the presence of a law enforcement vessel. Previous studies have documented the harmful effects human-dolphin interactions have on both the animals and humans involved (Samuels & Bejder 2004). Given the high levels of pressure and harassment towards dolphins observed during this study and considering future growth in marine tourism, dolphins are likely to be continually affected if existing management plans do not expand to become more sufficient in addressing this issue.

My results show that the presence of a Marine Patrol vessel played a role in the
amount of harassment behaviors exhibited during dolphin tours. There was a highly significant increase in the frequency of harassment in the absence of the Marine Patrol. Overall, 75 harassment behaviors were observed in the absence of Marine Patrol, while only six were observed in their presence. My findings supported the conclusions of previous research conducted on human-dolphin interactions in Sarasota Bay, FL (Cunningham-Smith et al. 2006). During a docent program in Sarasota, the number of law enforcement efforts was increased and well-marked docent boats approached boaters with education materials after witnessing violations of the MMPA. A follow-up study assessed the effectiveness of the docent program and showed that attempts to feed and touch dolphins were significantly greater when docent and law enforcement vessels were absent (Cunningham-Smith et al. 2006).

On average, during my observation periods, 1.4 boats, 1.1 jet skis and 0.7 swimmers surrounded one individual dolphin, rarely freeing an animal from human pressure. Surprisingly, there were also significantly fewer boats and swimmers surrounding dolphins in the presence of the Marine Patrol. Many dolphin tours were advertised to include a snorkeling and shell collecting component. It is possible that tour operators chose to engage in these other activities while the Marine Patrol was monitoring the area, resulting in fewer boats and swimmers in the water.

V. Conclusion

My observations provide support for the strong deterrent effect Marine Patrol has in reducing the frequency of human harassment and illegal feeding of wild dolphins. I conclude that the presence of law enforcement is the most effective method in reducing
the frequency of wild dolphin harassment and feeding. Therefore, I recommend that more resources should be allocated to increase the presence of Marine Patrol in Panama City Beach, FL. The presence of a Marine Patrol vessel might serve as a financial incentive for tour operators to adhere to the MMPA and wild dolphin viewing guidelines, considering the financial repercussions of violations that can be prosecuted criminally or civilly up to $100,000 in fines (sero.nmfs.noaa.gov). Additionally, enforcement vessels can effectively communicate to tour operators about which activities are considered Level B Harassment and a violation of the MMPA. This could help to decrease ambiguity of the term “harassment” and thus reduce the frequency of potentially harmful human interactions.

In conjunction with an increased presence of law enforcement, there also needs to be an increase in education of the tourists themselves. A study in New Zealand addressed the question of whether tourists want to be educated on swim-with dolphin tours (Lück 2003). Their results confirmed that tourists not only want, but expect, to be educated about dolphin behavior and the marine environment during their tour (Lück 2003). One way to accomplish this request is to provide trained naturalists onboard tours to engage with passengers, teach them about dolphin behavioral ecology and provide behavioral interpretations. The naturalist can be provided and supported by the dolphin tour operator company with the underlying motive that knowledgeable and engaging naturalists will increase tour sales, resulting in financial gain for tour operators and increased conservation awareness for the public.

Another tool for education is a mobile application device, such as the Nai’a Guide (Fox 2013). The Nai’a Guide is an ecological conscience app filled with information on
spinner dolphin health, life history, current research, and conservation issues concerning
spinner dolphins and human interactions in the Hawaiian Islands (Fox 2013). The Nai’a
Guide is intended for tourists visiting Hawaii who can download without cost from the
Apple iTunes store (Fox 2013). A similar, site specific app could be designed for the
Panama City Beach area and advertised to tourists interested in learning about dolphin
ecology and human impacts prior to participating on a tour during their visit.

In addition, a great deal of time and resources have already been dedicated to
launching Dolphin SMART, a program that provides participation incentives for
businesses to become certified and adhere to a set of criteria that practice sustainable
viewing techniques to reduce the potential of harassment (sanctuaries.noaa.gov).
However, the largest barrier to becoming Dolphin SMART certified is a lack of a
perceived business advantage (Goss 2013). There are nearly 120 vessel-based operators
in southwestern Florida, including fishing charters and boat and jet-ski rental companies,
all of which have the potential to interact with dolphins on some level; only nine
operators are Dolphin SMART certified (Jessica Powell, personal communication, Oct
2013). Rather than target tour operators, Dolphin SMART could shift their outreach
efforts towards increasing the time and effort spent in educating the visitors who
participate on dolphin tours rather than the tour operators themselves.

Finally, I recommend that social science research should investigate the
motivation for tourists to participate in dolphin tours and ascertain what they hope to gain
from the experience. A before-and-after study should be conducted in which surveys are
distributed to customers prior to and after having received formal education regarding
human impacts on dolphin physical and behavioral ecologies. It is theorized that if
visitors become aware of the detrimental impacts their close interactions have on the behavioral and physical well-being of dolphins prior to or during a dolphin tour, they might be inclined to refrain from such activities (O’Neill et al. 2004). For example, educated visitors who are on board with a tour operator that is harassing dolphins might speak to the operator, provide negative feedback on a business review site, or refrain from feeding or swimming with them. If customers do indeed want to participate on more “eco-friendly” tours, then this information can be presented to tour operators with the hope of instigating a change in their behavior through the wants and needs of their customers.

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