NON-REGULATORY APPROACHES TO MARINE WILDLIFE TOURISM: THE DOLPHIN SMART EXPERIMENT IN HAWAI‘I

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Abstract

Observations of Hawaiian spinner dolphins (*Stenella longirostris*) that experience repeated encounters with tourists suggest that the dolphins may alter their behavior in ways that may be detrimental to their population in the long term. The National Oceanic and Atmospheric Administration (NOAA), the federal agency responsible for enforcing the Marine Mammal Protection Act, has been developing alternative management measures for consideration in an environmental impact statement. These measures will likely include time and area closures of critical resting bays and approach distance limits. In the meantime, the agency has relied upon a public service campaign seeking voluntary compliance with responsible wildlife viewing guidelines. A study of O‘ahu tour operators participating in a voluntary code of conduct and certification program called Dolphin SMART suggests that the practice of "leap-frogging" and other strategic behavior to increase the tour customers' proximity and the duration of in-water dolphin encounters will persist unless a blanket prohibition on swim-with dolphin tours is adopted. This research qualitatively measures the success of the Dolphin SMART program in Hawai‘i and the effectiveness of NOAA's strategy of introducing a voluntary certification program. Results highlight why some dolphin tour operators on O‘ahu have decided to be Dolphin SMART and some have not, information that is useful to NOAA and Dolphin SMART managers with making future implementation of the program more successful.

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I. Introduction

For several decades, the state of Hawai‘i has offered its visitors and residents spectacular whale watching opportunities, occurring throughout the winter months during the annual migration of the North Pacific humpback whales (*Megaptera novaeangliae*) from Alaska to Hawai‘i, when they come to breed and give birth in the warm shallow water of the islands. Whale watching tourism has increased since 1993 when the International Whaling Commission (IWC) recognized it as a sustainable use of whales and dolphins (Orams 2000). It is now a several billion dollar industry that continues to grow each year, occurring in over 119 countries with over 13 million tourists participating each year (O'Connor, S., Campbell, R., Cortez, H., & Knowles, T. 2009). Historically, the whale watching industry in Hawai‘i has been focused on the humpback whales, but the dolphin-watching sector, targeting the Hawaiian spinner dolphin (*Stenella longirostris*), has expanded in the past decade, sparking controversy on several islands where dolphin viewing and swimming tours have become a popular attraction.

The National Oceanic and Atmospheric Administration (NOAA) is the government agency tasked with protecting marine mammals from harassment, a term very broadly defined under the Marine Mammal Protection Act (MMPA). Thus far, this agency has taken a non-regulatory approach to managing Hawaiian spinner dolphin tourism, in the form of a voluntary code of conduct program called Dolphin SMART. This research aims to measure the success of the Dolphin SMART program in Hawai‘i and the effectiveness of NOAA's strategy of introducing a voluntary certification program. This is of particular importance because dolphin tours may put more pressure on a species that is already at risk from changing environmental conditions due to climate change, threats to habitat from marine debris, runoff, and other sources of coastal pollution, possible exposure to emerging disease, fisheries interactions, and sources of anthropogenic noise (Pacific Islands Photo ID Network 2014). However, this study will focus on the issue of commercial dolphin tours in Hawaiʻi and the risks to spinner dolphins associated with that industry, as well as efforts by the responsible agencies to mitigate those risks by way of the non-regulatory Dolphin SMART certification program, and the reactions of tour operators to that strategy.

A basic internet search for dolphin tours on Oʻahu, corroborated with the Dolphin SMART Oʻahu dolphin tour operator list, shows that there are now around ten tour boats that regularly visit the resident pods on the Leeward Coast of Oʻahu. There are also many people (both tourists and residents) who swim, paddle, and kayak out to resident dolphin pods, which are often easily accessible from shore. On the Kona Coast of Hawaiʻi Island, there are as many as fourteen operations that base their tours on encounters with spinner dolphins (Johnston 2014). Maui and Kauai also operate tours that view dolphins, although on those islands dolphin viewing tends to happen more opportunistically (O'Connor et al. 2009; personal observation).

Tours typically operate at over 60 percent capacity in the off season and at or near 100 percent in the peak winter season, when cetacean-watch tours increase with the annual humpback whale migration to Hawaiʻi (Boehle 2007; Hu, Boehle, Cox & Pan, 2009). In 2008, it was estimated that Hawaiʻi's 120,000 dedicated dolphin tourists contributed over 60 jobs and $4.4 million in revenue (O'Connor 2009) to Hawaiʻi's economy. As the dolphin watching industry continues to grow, increasing boat and swimmer traffic may displace the spinner dolphins from preferred resting areas (Forest 2001; Courbis 2004; NMFS 2007), which the National Marine Fisheries Service (NMFS) asserts "may not provide the same quality of rest and protection from predators as primary areas" (NMFS 2007; Johnston 2006). Rather than become accustomed to human presence, Constantine (2001) observes that dolphins become "sensitized" to human activities and are more likely to practice behaviors consistent with avoidance, not acceptance, of human disturbance.

Disturbance is a potential threat to Hawaiian spinner dolphins because resting is an important part of their daily cycle, and although they are known to display aerial behavior upon arriving and leaving their resting bays, normal resting behavior is slow, “lazy” swimming in formation (Danil, Maldini, & Marten 2005). Spinner dolphins hunt and feed at night, spending their days resting close to shore in shallow, protected areas like coves and bays where they are safe from predators such as sharks and larger cetaceans (Norris et al. 1994). In Hawai‘i, spinner dolphins are found regularly in these resting bays, making them a popular attraction for many vessel and shore-based tourists. Some tour boats cruise into the path of dolphin pods, dropping swimmers into their midst as they swim by. Once the dolphins pass, the swimmers are collected again and the boat “leap frogs” back in front of the dolphin pod to drop the swimmers again. Dolphins that swim away from one group of swimmers or away from one tour boat may soon encounter another, keeping them in a high state of alertness instead of the preferred resting state (Courbis & Timmel 2008; Lammers 2004).

Studies in Kealakeakua and Kahako Bays on Hawai‘i Island have shown that interactions with boats and swimmers can influence the behavior of dolphins, causing them to change their swimming speeds, diving and aerial behavior, movement patterns, and vocalization patterns (Courbis & Timmel 2008; Ostman-Lind 2008). Some groups of dolphins tend to leave the resting bay earlier when large numbers of swimmers are present (Danil et al. 2005), and patterns of aerial behavior have changed over time, coinciding with traffic increases in the bay (Courbis & Timmel 2008). Forest (2001) found that the demonstration of aerial activities by resident spinner dolphins had actually decreased in Kealakeakua Bay over time, which could indicate that the dolphins had lower energy levels, possibly due to disturbance.

Although dolphins can seem friendly when they approach humans to investigate, this is a deviation from their natural behavior (Johnston 2006). Even the most unobtrusive of disturbances can still disrupt the dolphins during their important resting times. Spinner dolphins that appear to be jumping and spinning for “fun” or play may actually be agitated or disturbed by human activities, especially when high volumes of tourists are introduced consistently (Courbis 2004). The National Oceanic and Atmospheric Administration (NOAA), the federal agency tasked with enforcing the Marine Mammal Protection Act (MMPA), is in the process of developing a set of proscriptive regulations to minimize disturbance to Hawaiian spinner dolphins. In the meantime, the agency has introduced an alternative management strategy to the Hawaiian Islands called Dolphin SMART.

Dolphin SMART

The Dolphin SMART program was originally launched as a pilot program in 2007 in Key West, Florida where up to 40 operators were viewing bottlenose dolphins in a dolphin sanctuary nicknamed Dolphin Playground (NOAA 2013). A small resident group of dolphins was being exposed to the same pressures day after day, which concerned both the operators and the public. The program was popular in the Florida Keys and launched in Orange Beach, Alabama in 2008 and Central Southwest Florida and the Florida Keys in 2010 (NOAA 2013).

In September of 2011, NOAA Fisheries began the Dolphin SMART program in Hawaiʻi in response to concerns about the high volume of tourist activity and interaction with spinner dolphins, and the “lawlessness” and “multiplicity of etiquette” practiced by operators (Wiener 2013). On the Waiʻanae Coast of Oʻahu, where 78 percent of the dedicated dolphin watching in

Hawai‘i occurs (O’Connor et al. 2009), there are two types of spinner dolphin viewing tours offered - those that swim with dolphins, and those that do not. Swim-with dolphin tours attempt to put swimmers in the water as the dolphins pass by to give their guests an up-close and underwater perspective. The non-swimming dolphin tours allow their customers to view the animals from the vessel, but the proximity depends on both the vessel captain and sometimes the animals themselves. The non-swimming tours tend to loosely follow the National Marine Fisheries Service (NMFS) recommended viewing guidelines while the swim-with dolphin tours promote a more immersive viewing experience.

The voluntary Dolphin SMART program offers Hawai‘i dolphin tour operators that do not swim with dolphins a Dolphin SMART certification in exchange for a commitment to follow a comprehensive set of wildlife viewing guidelines and steps to reduce harassment. The Dolphin SMART guidelines correspond with NMFS guidelines, but give operators following those guidelines a more distinguished form of recognition. The goal of the program is to decrease the anthropogenic impacts on the resident spinner dolphin populations in Hawai‘i by giving tour operators a set of incentives to follow a set of best practices, with the implication that restrictive regulations on dolphin-viewing businesses could be avoided if enough companies obtain certification and comply voluntarily with the guidelines.

The standards of the Dolphin SMART program are part of the Dolphin SMART acronym: **S**tay at least 50 yards away from dolphins, **M**ove away cautiously if dolphins show signs of disturbance, **A**lways put your engine in neutral when dolphins are near, **R**efrain from feeding, touching, or swimming with wild dolphins, and **T**each others to be Dolphin SMART. Dolphin SMART operators must first meet a set of criteria before applying to become Dolphin SMART, including conducting an educational briefing onboard the vessel, providing outreach materials, complying with all current laws, reporting any marine mammal strandings, injuries, or entanglements, reporting any potential violations of the MMPA, abiding by all NMFS policies and recommendations, participating in Dolphin SMART training, and engaging in responsible advertising (NOAA 2014). The Dolphin SMART program offers economic incentives for certified operations that are meant to offset the costs of not participating in swimming with dolphins, with the hope that both operators and tourists will be motivated to shift behavior and become more dolphin-friendly and conservation minded.

II. The Study

Research Questions

The purpose of this research is to gauge the general success and efficacy of the Dolphin SMART program in Hawaiʻi since its introduction in September 2011. This research project seeks to determine the effectiveness of the Dolphin SMART Hawaiʻi program as a conservation strategy and management tool in Hawaiʻi, and to provide NOAA with feedback for improvement to make Dolphin SMART a more desirable label for Hawaiʻi dolphin tour businesses. To meet these objectives I posed the following research questions:

1. How did the Hawaiʻi dolphin tour industry react/respond to the Dolphin SMART program?
2. Do Hawaiʻi dolphin tour operators believe that harassment is a risk of dolphin tours and that the dolphins need protection?
3. What are the identified needs that support an increase in uptake and operator support for the Dolphin SMART program?

4. How do tour operators react to the possibility of more proscriptive/regulatory measures?
5. What expectations and objectives did NOAA have for Dolphin SMART? How effective is this strategy at reducing the impacts to Hawaiian spinner dolphins (and making dolphin tourism more sustainable)?

Goals and Rationale

The Dolphin SMART program is a policy instrument that uses economic incentives to motivate individuals and industries to operate in a manner that has less impact on the environment than is the norm within their peer group. What distinguishes the institutional context of the Dolphin SMART program from other incentives-based instruments is that prescriptive and proscriptive regulations are being developed at the same time by the responsible agency.

Voluntary certification programs like Dolphin SMART are premised on the idea that consumers will prefer and purchase a more environmentally friendly product or service. By gaining Dolphin SMART certification, tour operators will obtain economic benefits that offset the costs of not participating in swimming with dolphins. The hope is that certification will motivate both operators and tourists towards a shift in behavior in the direction of becoming more dolphin-friendly and conservation minded.

The success of the Dolphin SMART program is dependent upon owner and operator uptake of and adherence to the program. On O‘ahu, a minority of dolphin tour operators subscribe to the program. First, data from this research may be useful to NOAA to explain why operators have chosen to support the Dolphin SMART program. Second, data may show how Dolphin SMART has influenced the bottom line of these operators and their perceptions of the sustainability of dolphin tours. It is important to determine why operators perceive the program as a positive or negative force for dolphins and for their business. This information can be used by managers to evaluate and improve the program and to assess its effectiveness at protecting spinner dolphins.

Positionality

Given my background as a Geography graduate student and my participation in the Graduate Ocean Policy Certificate program, I had some prior knowledge of the issues surrounding dolphin tourism in Hawai‘i. I had the opportunity to swim with dolphins in the wild several times before commencing this research project while snorkeling from shore on Maui and Lanai. I also worked onboard a Dolphin SMART certified vessel that participated in dolphin watching in the study area, and was familiar with some of the operational protocols and codes of conduct prior to my interviews. I was able to observe the activity of other vessels while working on the water but I had a limited understanding of why there was such a variance in the types of tours offered, and why some operators chose to swim with dolphin and other did not.

In the beginning stages of this research, I planned to do a comparative study of operator codes of conduct on dolphin tours on O‘ahu, Maui, Hawai‘i Island, and Kauai. I planned to use participant observation methods to (anonymously) discern a code of conduct onboard, and to evaluate each tour by Dolphin SMART standards (including those that were already certified Dolphin SMART). I participated in one tour on Hawai‘i Island, two tours on Kauai, three on Maui, and two on O‘ahu (not including the company I worked for). Some tours were Dolphin SMART, some swam with dolphins, and others did not swim with dolphins but were not Dolphin SMART certified. I learned a lot from these tours, and had the chance to see many operations in action and how operators and tourists onboard responded to viewing and/or swimming with dolphins. I did not include the information gained from these observations in this research because I did not feel that it was a comprehensive sample of all of the dolphin tours in Hawaiʻi. Travel, lodging, and tour expenses would have been prohibitive if I had stayed on each island long enough to do each available tour just once. Instead, I went on some of the tours opportunistically when I was already on island for another reason. I did learn from my observations and participation in the tours that the code of conduct on some operations varies according to many factors, including, but not limited to, the captain, the crew, the speed and direction in which dolphins are traveling, the ability and fitness of guests onboard, and weather and ocean conditions.

Research Site

Oʻahu, the third largest island in the state of Hawaiʻi, and the most populous, is home to approximately 983,429 people (United States Census Bureau, 2014). According to the most recent report of the Hawaiʻi Transportation Authority (HTA), Oʻahu received 5,044,276 visitors in 2013 that spent $7.4 billion on the island (HTA Annual Visitor Report, 2013). Hawaiʻi leads all states with 15 percent of its employment in ocean economy sectors, the bulk of that being in tourism and recreation (HTA Annual Visitor Report, 2013). Marine tourism, which includes revenues from all manner of boat tours and activities like parasailing and jet skis, snorkeling, diving, whale watching, surfing, and swimming, is a huge sector of that economy and a major draw for people all over the world. Millions of tourists visit places like Waikiki, Hanauma Bay and other sensitive marine-life zones, resulting in environmental degradation and increasing pressure on fish, mammals and other marine species.

Because of this, Oʻahu is a center for conservation and management activity by both public and private organizations. On Oʻahu, dolphin tours take place year-round along the

Leeward and Wai'anae Coast, on the west side of the island, where spinner dolphins can be found most consistently in their favorite resting bays[1]. Some tours offer swim with dolphin experiences where tourists get a chance to be in the water with wild spinner dolphins; other tours offer dolphin viewing tours from onboard a vessel. The majority of vessel-based dolphin tours, which includes all of the operators interviewed for this research, depart from Wai'anae and Ko Olina boat harbors. Ko Olina is a private harbor, and Wai'anae Boat Harbor is operated by the state Department of Land and Natural Resources (DLNR).

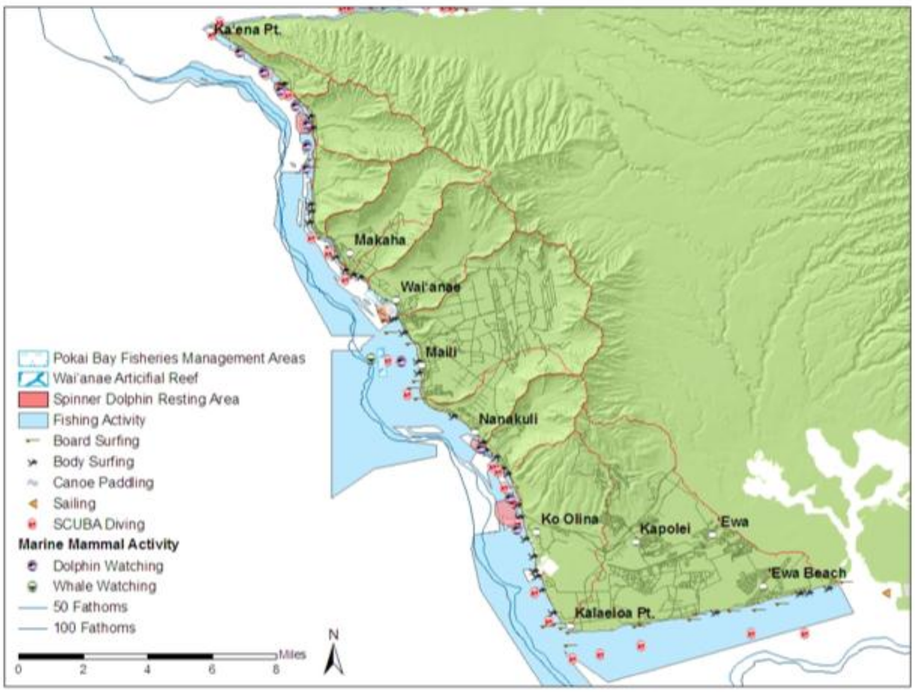

Fig 1: The west coast of O'ahu showing popular recreation activities and their locations (From DLNR Wai'anae Environmental Baseline Study, 2009).

[1] There are also swim-with captive dolphin tours in Hawai'i, located on O'ahu at Sea Life Park and the Kahala Hotel and Resort, and in Kona at the Hilton Waikaloa. These programs were not surveyed because they deal with other species in captivity, but their existence creates competition for tourist dollars for boat and shore-based dolphin tours.

Research Methods

Data Collection

I attended the introductory Dolphin SMART meeting on Oʻahu in September 2011 to better understand the concerns of the dolphin tour industry and why there was a need for the program in Hawaiʻi. I collected interview data on Oʻahu in the summer and fall of 2013 using semi-structured interviews, from dolphin tour "industry experts," which include owners and operators involved with spinner dolphin tourism in Hawaiʻi.

There is no official directory of dolphin tour operators in Hawaiʻi, but the Dolphin SMART program has compiled a list of the tours focused on spinner dolphin viewing on Oʻahu. I solicited interviews from the contact information on this list and from information available on the tour websites. I sent requests for interviews by email, and made follow up phone calls to reach those that did not respond. In total, six representatives of the ten companies on the list of Oʻahu tour operators responded and agreed to an interview. I conducted interviews in an agreed upon meeting spot that was convenient to the interviewee and I recorded them using a digital voice recorder for later transcription and analysis. At the start of the interview, I gave each interviewee the chance to read and sign an Informed Consent form that was approved by the University of Hawaiʻi Committee on Human Subjects. This consent form outlined the basic goals of the study and gave the interview subjects the option to remain anonymous and/or to withdraw from the study at any time. Interviews were usually between 25 and 35 minutes long.

A semi-structured interview protocol guided discussions with tour owners, operators, and other industry experts to identify their main responsibilities and duties, clarify operators' decisions affected by the introduction of the Dolphin SMART program, and determine their understanding of proposed regulations regarding spinner dolphin tourism in Hawaiʻi. I chose a semi-structured interview technique because it is more flexible than a structured interview or quantitative survey and gives the interviewees more leeway in their replies, while still allowing for specific issues and questions to be addressed (Bryman 2008). I am interested in the dolphin tour operators' point of view, and wanted to gain a greater insight into their thoughts and opinions. Quantitative interview techniques and surveys are typically less flexible because the information and procedures need to be standardized between interviewees (Bryman 2008). I wanted to really understand the reasons for and motives behind the operators' decisions, and what they mean for the Dolphin SMART program and spinner dolphin tourism.

Data Analysis

The interviews were recorded using a digital voice recorder and I transcribed the recordings immediately following each interview. I transcribed the interviews manually to minimize errors and to accurately capture words and expressions in the Hawaiian language. Because the number of dolphin tour operators on O'ahu is relatively small, my qualitative research methods allowed me to gain a more detailed understanding of the response to both the voluntary Dolphin SMART program and potential regulatory measures regarding dolphin tourism in Hawai'i. I found that each of the dolphin tour operators has very strong convictions regarding how they operate, as well as a very diverse set of beliefs. I wanted to share their individual beliefs, motivations and opinions in their own words, which has more meaning in the context of this research than quantitative values.

III. Literature Review

Studies of Dolphin Tourism

Researchers and resource managers at DLNR and NOAA do not know whether populations of spinner dolphins in Hawai'i are declining or if dolphins might be increasingly frequenting other, lesser known sites due to the increase in dolphin-based tourism (Bejder, Whitehead, Samuels, Finn & Allen, 2009). Bejder et al. concluded that “an animal will decide to switch from short-term behavioural avoidance to long-term area avoidance when the cost of remaining and tolerating ongoing disturbance exceeds the benefit of continuing to occupy an otherwise preferred habitat” (2009, p. 3). For the Hawaiian spinner dolphin, this could mean that animals repeatedly subjected to human disturbance in their preferred resting bays could be forced to move to a more marginal location, though Johnston (2014) found that in Hawaiʻi, “no studies have directly and explicitly addressed the extent to which resting bouts are affected by various levels of human interactions, and there are no recent demographic studies to assess population-level effects of this chronic harassment” (p. 282). In addition, a 1999 study of Hector’s dolphins in Porpoise Bay, New Zealand concluded that the effects of dolphin-based tourism on dolphin populations might be “cumulative rather than catastrophic” (Bejder, Dawson & Harraway, 1999, p. 748). Over time, dolphins exposed to tourism may experience decreased fitness and reproductive success, leading to a slow but no less critical decline. The following section outlines studies of other dolphin populations exposed to the pressures of dolphin tourism, which researchers and managers have used to support the introduction of the Dolphin SMART program and to justify the need for spinner dolphin regulation in Hawaiʻi. There are differences in biology, habitat, and types of disturbance between each species of dolphin, but until more long-term studies can be done on spinner dolphins in Hawaiʻi, these case studies provide the best available evidence of tourism impacts on dolphins and the effectiveness of a variety of management strategies.

Australia and New Zealand

In a 2008 study of the dolphins in Monkey Mia, Shark Bay, Australia, Higham and Bejder (2008) found that even a rather low level of commercial dolphin-watching activities can be unsustainable. The bottlenose dolphin population in Shark Bay is a good case study because it has been studied closely over a long period of time and because it is also the main draw for tourism in the region (Higham & Bejder 2008). Studies were commenced nine years before vessel-based dolphin tourism was introduced and continued with the onset of dolphin tourism, and there are nearby subsets of the same population of bottlenose dolphins that have little to no contact with tour vessels that can act as controls.

An increase from one dolphin-tour operator to two in 1998 in Shark Bay preceded Higham and Bejder's (2008) hypothesis that the increase may be negatively affecting the dolphin population. In Shark Bay, some juvenile bottlenose dolphins were so conditioned to being fed by tourists, a behavior they learned from their mothers, that it is possible they did not learn enough foraging strategies to survive without human handouts (Bryant 1994). Studies of dolphin abundance were conducted in adjacent tourism and control sites were collected over three consecutive 4.5-year periods. Levels of research and recording of data and observations were consistent over these periods but tourism levels increased from zero to one boat operator, and then from one to two. In the tourist site, female dolphins in the tourism groups were found to have lower reproductive success than those in the control, or "wild" site, which experienced the opposite effect during the study period, indicating that the current level of tourism was not sustainable. Because Higham and Bejder had access to adjacent control and tourism sites, they found it unlikely "that differences in changes in impact measures between sites and time periods are attributable to confounding factors (e.g., changes in prey or predator abundances) since the effects of such would likely influence both adjacent sites similarly" (Higham & Bejder 2008; Bejder et al., 2006, p. 2). A significant decline of 14.9% in dolphins per square kilometer in the tourism areas was attributed to tour vessel activity (Higham & Bejder 2008). The Minister of the Environment for Australia subsequently decided that the best option for the long-term sustainability of dolphin-based tourism in Monkey Mia was to reduce the number of licenses from two to one, and to ban any additional research vessel activity in the area. Higham and Bejder (2008) conclude that the decision of the Dept. of Conservation and Land Management (CALM) to sacrifice one tour operator to benefit the long-term sustainability of the dolphins represents a shift towards the realization that not all wildlife tourism is sustainable.

Besio et al. (2008) found that of the fifty-six companies that New Zealand's Department of Conservation permitted to allow dolphin swims, twenty-two of them sell dolphin swims as the main attraction (Besio, Johnston & Longhurst, 2008). Dolphin tour operators call attention to promiscuous dolphin behavior and market them as “sexy beasts,” while also emphasizing a connection between dolphin and human mothers and their babies as “devoted mums,” a marketing strategy that “enables ecotourism operators to promote dolphins as creatures that, on the one hand, are wild, sexy, different, and exciting, and, on the other hand, are loving, cultural, and the same as humans” (Besio et al. 2008, p. 1221). This reproductive narrative works in tandem with New Zealand’s Marine Mammals Protection Regulations (1992), which prohibit swimming with juvenile dolphins or with pods containing juvenile dolphins, and “frames the need for environmental protection through a self-evident desire to protect the spaces of dolphin mothers and babies” (Besio et al. 2008, p. 1221). In addition to portraying dolphin mothers and calves as more vulnerable and requiring protection, the sale of cuddly dolphin plush toys, adopt-a-dolphin programs, and naming of individual dolphins also garners support for the conservation of dolphin species in New Zealand. Protecting dolphins by selling their conservation and emphasizing their connections to people is a win-win for operators, who depend on mothers and their calves to survive and thrive, and to thereby increase the populations that dolphin tours depend on (Besio et al., 2008).

Florida

Florida has had a long history of dolphin tourism and, as a result, dolphins have become conditioned to human presence, altering their long-term behavior and posing a risk to both humans and dolphins (Bryant 1994; Spradlin 1999). Florida's dolphins have been habituated to feeding from vessels, which may alter foraging and migration behaviors, and can make them more aggressive as they lose their wariness of people, making them a danger to swimmers and participants in other water-based activities, as well as other dolphins (Bryant 1994; Spradlin 1999). Dolphins habituated to handouts are also at greater risk from boat strikes and other harmful interactions caused by bow-riding and surfing boat wakes (Bryant 1994). In 1991, at the urging of the U. S. Marine Mammal Commission (MMC), NMFS published regulations under the MMPA that included feeding wild dolphins as "takes" prohibited by the act (NOAA, 56 Fed. Reg. 11693, amending 50 CFR 216.3). The regulations were upheld by the U.S. Court of Appeals in Strong v. United States, 5 F.3d 905 (5th Cir. 1993) and incorporated into MMPA amendments to the definition of "harassment" signed into law in April 1994. However, dolphin tourism, including swimming with dolphins, has persisted in Florida and even expanded since this time, disturbing local pods of dolphins and altering their behaviors (Bryant 1994). Feeding by wild dolphin tours, however, has been subject to civil penalties.

In Florida's Sarasota Bay, a well-known pod of bottlenose dolphins subject to a very high level of vessel traffic was found to exhibit several short-term behavioral changes in response to vessel traffic (Nowacek, Wells, & Solow, 2001; Buckstaff 2004). This particular pod of dolphins, which experience a vessel approach on average every 6 minutes, exhibited longer interbreath intervals (IBI), changes in heading and swimming speed, and formation of closer subgroups during an exposure event (Nowacek et al., 2001). More experienced dolphin mothers exhibited longer IBIs than less experienced mothers, suggesting that boat avoidance is a long-term learned behavior, and possibly explaining the reason for lower calf survivorship with first-time mothers, who may not know that it is safer for their calves to stay below the surface when a vessel is nearby. The duration of exposure and the rate of change of an approaching vessel were found to be two probable causes of short-term disturbance to the dolphins, which were found to have longer IBIs than when no boats were present, and who exhibited more behavioral changes upon an erratic or unexpected vessel approach (Nowacek et al., 2001). In addition, Buckstaff's 2004 study investigated short-term changes in the acoustic behavior of the Sarasota Bay in response to boat traffic, and found that whistling frequency increased upon vessel approaches as compared to when no vessels were present. Short-term behavioral changes indicated that there may be long term impacts that may have a cumulatively deleterious effect on dolphin populations. There is an identified need in Florida for more long-term research into these topics, which may inspire a closer examination of current management schemes (Nowacek et al., 2001; Buckstaff 2004).

In 2007, NOAA introduced the Dolphin SMART program to the Florida Keys in response to the intensity of interactions with and disturbance to dolphins caused by recreational and commercial boaters. As mentioned above, NOAA's main enforcement concern in Florida is the feeding of wild dolphins, while in Hawai'i the interactions between dolphins and swim-with dolphin vessels and their customers take priority. Goss (2013) analyzed the drivers and barriers to Dolphin SMART participation in Florida and the success of cause-marketing strategy, by which companies associate their brand with a social or environmental cause with the aim to "significantly increase revenue and accrue social benefits to the company" (Goss 2013). Goss surveyed operators in Southwest Florida and the Florida Keys to determine the motivations for business involvement in Dolphin SMART, and sampled their customers to find out if they were aware of the program. She found that many of the Dolphin SMART operators were motivated by the conservation message, and that some who were unaware of the threats to the dolphins prior to the program's introductory meeting were motivated to join after they became aware of said threats. The main barriers to membership included issues such as compliance with Dolphin SMART viewing and advertising requirements, concerns about competition with other businesses who were not Dolphin SMART (especially in Key West) and the negligible effect that the program had on increasing business (Goss 2013). According to Goss, Dolphin SMART operators in Florida are also frustrated by the lack of awareness about the program, and think that the program managers should do more to promote it. She found that the Dolphin SMART cause-marketing strategy did not come with a noticeable increase in revenue or social benefits in Florida and ventured that Dolphin SMART companies could be more proactive in promoting their association with Dolphin SMART. The majority of the customers she surveyed after they went on a tour did say they would rather choose a Dolphin SMART company over on that was not. Customers were happy to support the program, but educating them about their choices and the program before they book a tour is a challenge (Goss 2013).

Economic Valuation Studies

Wildlife tourism can be a positive force for not only a local economy, but also for environmental education and conservation. Numerous studies document the social benefits associated with wildlife tourism, and spinner dolphin tourism is likely no exception. There are economic benefits for the tour industry and boat owner/operators, and educational benefits for wildlife tour participants. Wildlife tourism can also indirectly benefit a species by encouraging more conservation-minded practices (Andersen & Miller 2006). Seeing animals close up and in the wild is a much different experience than seeing them in a zoo or an aquarium, or reading about them in a book. Hands-on education can be an effective tool to achieve management objectives (Andersen & Miller 2006), and industries such as whale and dolphin watching are a positive force for promoting awareness of marine issues and inspiring participation in conservation endeavors. Unlike bottlenose dolphins, spinner dolphins do not survive and are not held in captivity for display anywhere in Hawai‘i, so one must seek them out in the wild to experience them. Finding the point at which social and economic benefits are maximized while minimizing or eliminating harm to individuals or populations is an important step to more effective management.

The Dolphin SMART program is designed to be a proactive approach to mitigating the effects of swim-with dolphin tourism in Hawai‘i that aims to lessen the impacts of disturbance to spinner dolphins before these impacts reach unsustainable levels and exceed the carrying capacity of local spinner dolphin populations. Boehle (2007) determined that in Hawai’i the average market value of a spinner dolphin tour is US $111/person, but the maximum willingness to pay for a “spinner dolphin experience” is $152/person. In a largely unregulated and unmonitored industry like the dolphin tour industry on O‘ahu, Boehle (2007) concludes that the externality costs to spinner dolphins are not being included in the current market system. A common way to resolve this situation is by using policy tools that account for the value of the resource, in this case the dolphins, to prevent dolphin tours from operating at or beyond maximum sustainable yield (Boehle 2007; Hu, Boehle, Cox, & Pan 2009). Eco-certification programs such as Dolphin SMART are policy tools that have been developed in a way to minimize impacts on the animals while still giving people the opportunity to view them in the wild. In Hawai‘i, more proscriptive policies are being developed concurrently with the introduction of the Dolphin SMART program.

Policy Development for the Hawaiian Spinner Dolphin

Like all marine mammal species in the U.S., the Hawaiian spinner dolphin is protected under the federal Marine Mammal Protection Act of 1972 (MMPA). This law prohibits marine mammals from being taken by any person or entity in U.S. waters, or by U.S. citizens on the high seas, and also prohibits the importation and/or sale of any marine mammal products in the U.S. (MMPA 6 U.S.C. § 1361). The MMPA defines “take” as "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect” any marine mammal. Regulations further define harassment as “disturbance that has the potential to disrupt biologically necessary activities, such as resting or feeding” (NOAA 50 CFR 216.3, 2005).

Recent estimates put the Hawaiian spinner dolphin population at 3,351 animals, with about 2,234 of them thought to be concentrated off the popular resting sites on Hawai‘i Island (Barlow 2006; Caretta et al. 2011). In the central and western Pacific, spinner dolphin populations are island-associated, and Hawaiian spinner dolphins belong to a separate stock than those in the eastern tropical Pacific (Norris et al. 1994). In addition, the dolphins off the Kona Coast of Hawai‘i Island are genetically distinct from those associated with the other main islands, and an ongoing baseline study by the Murdoch University Cetacean Research Unit (MUCRU) has estimated that current numbers of this population may be much lower than previously thought (Tyne et al. 2014). This is cause for concern considering that they are prone to human disturbance in their preferred resting habitats (Caretta et al. 2011; Tyne et al. 2014). Smaller, distinct populations of spinner dolphins that are island-associated may be less resilient to human disturbance or future threats to their environment, such as climate change. A one-size-fits-all management scheme may also have a differential effect on populations that are genetically (and possibly behaviorally) distinct (Tyne et al. 2014).

To better assess the impacts of future management schemes on Hawai‘i’s spinner dolphins, the Murdoch University Cetacean Research Unit’s Spinner dolphin Acoustic, Population Parameters and Human Interactions Research (SAPPHIRE) Project, in collaboration with experts from the Duke University Marine Lab (David Johnston) and the University of Aberdeen, Scotland (David Lusseau), will continue to collect data on spinner dolphin behavior, abundance, and distribution in four resting bays on Hawai‘i Island where they are subjected to repeated human interactions (Murdoch University 2014). The data, which is being collected using a comprehensive array of modern visual and acoustic survey methods, will be used to assess the effects of human interactions on spinner dolphins and to test the effectiveness of using proposed management approaches, such as time-area closures, to mitigate disturbance effects (Murdoch University 2014). The results of the SAPPHIRE project will be important to NOAA in gathering more support for the development of regulations regarding the management of Hawaiian spinner dolphins.

Because Hawaiian spinner dolphins are not considered endangered or threatened under the Endangered Species Act, nor as “depleted” under the MMPA (Caretta et al. 2011), historically there have not been policies or other measures in place specifically to protect them. The mortality of Eastern Tropical Pacific spinner dolphins interacting with tuna purse-seine fisheries has long overshadowed any other population challenges that species of *Stenella* may face (Perrin, Wursig & Thewissen 2014). There, spinner and several other species of dolphins are ecologically associated with large schools of yellowfin tuna, which stay tightly bonded to the dolphins even when fishermen herd them into their nets. Once tuna and dolphins are herded into the nets, the dolphins are released alive, but many suffer grave injury or trauma, and may be subject to repeated capture over their lifetime (Perrin et al. 2014). An estimated 6 million dolphins have been killed in this fishery since the 1950s, when the industry shifted from traditional pole and line fishing to industrial-scale purse-seine nets (Perrin et al. 2014). Despite many actions over the past several decades to reduce dolphins as bycatch, including the "dolphin-safe" tuna labeling campaign, stocks have not significantly recovered (Perrin et al., 2014). In Hawai'i, the island-associated populations of spinner dolphins do not often venture more than 10 miles out from the coastline, so interactions with large-scale commercial fisheries are limited (Caretta et al. 2011). Nearshore fisheries are not observed or monitored, so there is not an estimate for human-caused mortality and/or serious injury for island-associated populations of spinner dolphins (Caretta et al. 2011).

However, under the MMPA, NOAA is obligated to protect marine mammals from disturbance that has the potential to harm them through disruption of biologically necessary activities. On O‘ahu, the study area for this research, spinner dolphins are consistently found on the leeward or Wai‘anae Coast, north of Ko Olina to Ka‘ena Point in their favorite resting bays. Here, swimmers, kayakers and tour boats frequent spinner dolphin resting sites, which have become well known for consistent dolphin viewing and the opportunity to swim with wild dolphins. The NMFS policy on close interactions with marine mammals is as follows:

> Interacting with wild marine mammals should not be attempted, and viewing marine mammals must be conducted in a manner that does not harass the animals. NMFS cannot support, condone, approve or authorize activities that involve closely approaching, interacting or attempting to interact with whales, dolphins, porpoises, seals or sea lions in the wild. This includes attempting to swim with, pet, touch, or elicit a reaction from the animals (NMFS, 2014).

Spinner dolphins in the study area experience frequent interactions with people and are subject to potential disturbance activities year-round. Although the definition of "harassment" under the MMPA covers disturbance by commercial and recreational tours, no regulatory or enforcement actions have been taken (NOAA 50 CFR 216.3, 2005). Voluntary guidelines devised by NMFS to promote responsible marine mammal viewing and protect dolphins “lack legislative power and legally binding rules” (Tyne et al. in Higham, 2014, p. 246) and may have led tour operators to believe their activities are not harassment.

In September 2006, under pressure from some dolphin tour operators, local residents, and others, NOAA published in the Federal Register a Notice of Intent (NOI) to prepare an environmental impact statement on alternatives for protection of the Hawaiian spinner dolphin and the management of dolphin-based tourism. Stakeholders were given the opportunity to comment during the public scoping period, and at several public scoping meetings held throughout the state in November 2006 (NMFS 2007). A Final Scoping Report was issued in April 2007.

In September 2011, as a result of increasing human-dolphin interactions in Hawaiʻi, NOAA introduced the voluntary eco-certification program called Dolphin SMART. Meanwhile, NOAA continues the process of developing a set of more proscriptive regulations regarding spinner dolphin tourism in Hawaiʻi that could include time area closures, approach distance limits, and limiting time spent with a group of animals.[2] These proscriptive regulations would limit the types of experiences offered to the many dolphin tourists that visit Hawaiʻi, and may impact the revenue of some dolphin tour companies if they are unable to adapt.

[2] Recent reviews of the management plan for the Hawaiian Islands Humpback Whale National Marine Sanctuary could result in a more ecosystem-based plan, including an expansion of the sanctuary to include other marine mammals like spinner dolphins and the endemic Hawaiian monk seal. A draft EIS on the proposed expansion is scheduled for release in late 2014 (M. Chow, NOAA Sanctuary Superintendent, pers. comm.)

IV. Results and Analysis

Dolphin SMART Operators in Hawai‘i

The decision to participate in the Dolphin SMART program was one that several O‘ahu dolphin tour operators made prior to the program's official rollout to Hawai‘i. These operators encouraged efforts to expand the program to Hawai‘i and actively supported it from its inception. Operators 1 and 2 had heard of the program's efforts to reform bottlenose dolphin tourism in Florida and Alabama and were enthusiastic about a similar program that would support the NMFS marine mammal viewing guidelines that they already followed. Operator 3 explained that the Dolphin SMART program "made sense and fit in with what we were trying to do out there… it just seemed to be a good fit" and was consistent with his existing philosophy and code of conduct for interacting with spinner dolphins. Operators 1, 2, and 3 all readily supported a program that might help "even the playing field" and make them more competitive with dolphin swim tours.

Conservation and Sustainability

Operators 1, 2, and 3 also support Dolphin SMART to promote the conservation of the Hawaiian spinner dolphin and to thereby ensure the sustainability of the dolphin tour industry. Operator 1 acknowledged that he saw a problem with how many other dolphin tours were being conducted, and he told me that "over time it just became more and more apparent that it's not good for the dolphins, it's just aggressive." The Dolphin SMART operators share a common grievance that the number of dolphins has decreased as the number of boats and the intensity of swim with dolphin tours has increased, mainly over the past decade. Operator 2 recalls that "9 years ago when there were less than half as many boats looking for them, there were less than 10 days a year where nobody could find dolphins anywhere" and that now he has seen "4 or 5 days in 10 days, or 2 weeks, where nobody could find dolphins." His response and that of Operator 1 illustrate the opinion that dolphins suffer from disturbance as a result of harassment from more intrusive dolphin tours:

> It's the high number of boats that are swimming purposely with the dolphins – that interfere with their sleep patterns in particular, which makes them less efficient hunters, they don't eat as much, they don't reproduce as well, and I've got to believe that some of them may just decide to go live somewhere else, even though this is an ideal coast in so many ways for them. It's dolphin heaven…but not with all these boats out here (Operator 2).
>
> It [dolphin tourism] has become more aggressive as more boats come on line to do it. They're getting faster. Operators are getting better at what they do. Guys have been around long enough to know how to hunt dolphins and when to get to them and how many to put in the water and how fast to do it, so it's becoming more and more aggressive (Operator 1).
>
> It can't be good for the dolphins to swim with them in the way that we do it. It just can't be (Operator 1).

Operator 1 refers to the veteran operators who have been guiding dolphin tours for many years and are now skilled at locating dolphins, positioning themselves in the path of the pod, and putting people in the water with them. They often repeat this "leapfrogging" routine many times as the dolphins travel along the coastline. The current Dolphin SMART operators have observed that spinner dolphins have become harder to find as they move away from their preferred resting areas and further from the harbor to avoid contact with tour vessels and disturbance (Operator 2). These observations are consistent with Constantine (2001), who found that bottlenose dolphins subjected to high levels of disturbance from vessels in the Bay of Islands, New Zealand increasingly practiced avoidance behavior over time.

Operator 2 mentioned that he had seen the salmon fishing industry disappear in Alaska and the sardines disappear in Monterey, and that another reason he supports Dolphin SMART is because he wants his young grandchildren to be able to enjoy the spinner dolphins many years from now. He believes that it will be challenging for current swim-with dolphin tour operators to compete if they quit offering the experience to swim with dolphins, but conversely, all dolphin tours will eventually suffer and go out of business if they do not quit the practice (Operator 2). Operator 2's conviction that the dolphins are a resource that needs to be preserved for future generations is why he is passionate about dolphin tours that are educational but not interactive with dolphins.

Education and Setting Customer Expectations

As the popularity of nature-based tourism and ecotourism grows, there has been an increasing interest in the importance of interpretation and education as part of the tourist experience. Some tours offer specially trained interpreters who give live commentary and answer questions as they come up, others show a movie, hand out information, or provide educational materials onboard that tourists can peruse at their leisure. Many are combinations of all of these methods (personal observation). One of the main goals of the Dolphin SMART program is to increase the knowledge and awareness of commercial operators and ultimately their customers through education (NOAA 2014). The majority of dolphin tour operators in Hawaiʻi provide some kind of onboard marine environmental education (OMEE), defined by Andersen and Miller as "a process aimed at increasing biological and cultural knowledge, awareness of environmental problems, and creating motivation to act responsibly towards these environments" (Andersen and Miller 2006, p. 112; O'Hearn 1982).

Effective interpretation can raise awareness of issues like the effects of harassing dolphins, the importance of preserving their resting habitats, and the impacts that people can have on marine mammals. Luck (2003) found that interpretation has an important role in "educating the tourist in order to reduce the negative impacts of tourism" (p. 945). The Dolphin SMART program aims to minimize disturbance to spinner dolphins by educating operators and their customers about spinner dolphin biology and behavior, and why viewing them from a distance is preferable to swimming and interacting with them. Even on a dolphin tour where tourists are permitted to swim with the animals, an effective education program can encourage tourists to stay in place and not touch, chase or otherwise harass the animals in the water. A memorable experience coupled with accurate education has the potential to inspire tourists to participate in the conservation of the species in the future.

In Luck's study, he found that ecotourists "are looking to gain an understanding about the environment of the local area, including its culture and wildlife. Thus, educating tourists is seen as a major mechanism of managing protected areas" (Luck 2003, p. 945). If customers on dolphin tours support responsible viewing practices, tour operators may also be more motivated to support improved regulations that protect dolphins. The tour operators that already abide by Dolphin SMART standards may also have an advantage in adapting to the suite of mandatory regulations that are currently being developed for the management of spinner dolphins in Hawai‘i.

The Dolphin SMART operators in Hawai‘i are enthusiastic about giving the onboard educational briefing that is a requirement of Dolphin SMART. Operator 1 hopes that if tourists are educated, they will be more likely to choose a more responsible viewing tour like he has to offer. This concept is supported by Luck's (2003) findings on eco-tourist motivations and the positive impact of environmental education, where he claims that environmental education fosters a better understanding of issues and encourages stewardship. Operator 1 also views Dolphin SMART as a valuable platform to implement a more thorough training program for his crew, and a more informative onboard educational briefing for passengers.

Operators 2 and 3 stress the importance of using the Dolphin SMART education guidelines as a tool to set customer expectations. It is important to set customer expectations from the start of the tour because it is hard to know what they may have been told when booking, which often occurs through a third party travel agent, hotel concierge, or activity vendor. Operator 3 states that customers who show up expecting to swim with dolphins are disappointed and feel cheated when they are told that it isn't on the itinerary. When guests onboard a Dolphin SMART vessel want to know why they can't get closer or engage in behaviors that other boats are doing, it presents the crew with a good opportunity to introduce a lesson in Hawaiian spinner dolphin biology and the impetus for Dolphin SMART. Operator 3 feels that joining Dolphin SMART was "almost selfish in a way" because it gives his company a good way to explain or excuse their choice not to swim with dolphins. He finds that customers will judge their satisfaction by what is laid out for them at the onset of a tour, and that the Dolphin SMART educational briefing leaves less room for misunderstandings and unhappy guests. For instance, Operator 3 said he might set ground rules based on Dolphin SMART guidelines:

> This is what's going to happen, these are the times, we've only got 30 minutes with the animals, and that's it, we've got to leave, because the scientists say that's the maximum time we can spend with them. Our approach regulations are this... we're not going to alter their behavior.

Dolphin SMART puts the welfare and conservation of the dolphins and the science behind the program in the minds of customers. This makes a Dolphin SMART tour a more valuable product (Operator 3). The guests know *why* they will not be swimming with dolphins, that the viewing time may be limited, and that there is a scientific basis for this conduct. Tourists do want to be educated, and studies show that they are more satisfied with tours that provide it (Luck 2003; Andersen and Miller 2006).

Shapiro (2006) and Andersen and Miller's (2006) studies of tourist preferences onboard whale watching vessels found that tourists do support conservation and management strategies when presented with effective onboard education programs. Results of Andersen and Miller's

2006 study found that no respondents on whale watching tours, even those that did not see whales on their trip, were disappointed with their experience. They were also “okay” with the viewing distance/time restrictions when viewing whales, indicating that they had a good understanding of the reasons behind these restrictions (Andersen and Miller 2006).

Operator 2 finds the educational briefing program requirement useful because it gives his operation a good reason to teach customers about why they should not swim with dolphins, without sounding like he is out to disparage or talk down the competition. He notes that:

> There’s this whole concept of ‘talk stink’ in Hawaiʻi. If you criticize what somebody else is doing, you’re talking stink, right? Well if you just say that in front of people and there’s other boats obviously doing what you say they shouldn’t do, that’s talking stink. But if you belong to a program that absolutely requires that, you’re just doing what you have to do, you know? (Operator 2).

This is important because competition between dolphin tours is stiff, and operators want their guests to feel like they paid for the best tour. Talking other companies down is not a positive way to accomplish this goal. The swim-with dolphin debate is already a “touchy subject” and a point of contention between many operators, and in the dolphin tour community word spreads fast. “Talking stink” could lead to unwanted confrontation or other consequences if rumors circulate (personal observation).

Safety

Operator 1’s concern for the safety of the dolphins and his customers was an additional reason for him to get onboard with Dolphin SMART. A lot of pressure can be put on captains and crew of dolphin viewing and dolphin swim tours to find dolphins and to get people close to them and/or in the water to swim with them. This pressure to deliver also has the potential to put dolphins and/or swimmers in harm’s way. Operator 1 doesn’t like the idea of putting passengers in the water to swim with dolphins while the boat motors are running because it is a potential safety hazard for both customers and crew. Many tour companies require their passengers to wear some form of life vest while entering the water (be it to swim with dolphins or just to snorkel), but having guests of so many different abilities fanning out in a large area can make it tough to supervise their safety. The situation can be chaotic when other boats and passengers are underway in close proximity and/or the dolphins are on the move (Operator 1).

Dolphin SMART Compliance and Challenges

Although they agree with the conservation-minded Dolphin SMART values, even the Hawai‘i Dolphin SMART companies that supported the program since its inception experienced some difficulties conforming to all of the requirements. While many of the Dolphin SMART guidelines were in line with what these operators were already practicing (not swimming with dolphins, following NMFS recommended regulations, etc.) others took time to be in compliance, and a few operators aren’t convinced that all of the requirements are necessary. Current Dolphin SMART operators in Hawai‘i agree that to be successful they must maintain a balance between being too strict and losing business to other companies that are more “fun,” and protecting the dolphins by viewing them responsibly (Operator 1 and 2).

Viewing Guidelines

For example, one requirement of the Dolphin SMART program (in line with the NMFS recommended guidelines) is that participating vessels stay at least 50 yards away from dolphins (NOAA Dolphin SMART Framework, 2014). This requirement makes it less likely for Dolphin SMART vessels to engage Hawaiian spinner dolphins in close interactions, which means fewer vessels causing disturbance and potentially doing long-term harm to the population. However, sometimes dolphins may approach a vessel on their own. They may swim up and engage in behaviors not consistent with the resting state, such as bowriding, which can make them appear as if they are just “goofing around” (Operator 2). According to the Dolphin SMART guidelines, an operator should slow the vessel down and put the throttle in neutral so as not to encourage a potential change in the dolphins' behavior (intentionally causing a change in behavior can be considered harassment under the MMPA, so for this reason Dolphin SMART requires that vessels shift to neutral when dolphins are nearby). Operator 2, who supports Dolphin SMART, mentioned that he doesn't like going into neutral when dolphins are sighted nearby because it can disrupt the cruise. He says "you've got to maintain some headway or your people start getting sick, the boat gets knocked off course… with our troll mode we can go way slower than a walk, it's hard for anyone to believe that's a threat to them" (Operator 2). Viewing dolphins from a distance when other tours are viewing them from underwater or inches away, and then disengaging from interaction if/when they do approach, puts Dolphin SMART operators in a difficult position. They want to give guests an unforgettable experience while also adhering to an ethical obligation to follow the recommended guidelines, but for Operator 2, some of the guidelines are unnecessary or a little too strict.

Advertising

Fig 2: Dolphin SMART Hawai‘i crew with recertification materials (*photo credit M.H.*)

For the Dolphin SMART program, education starts with responsible advertising, which ideally leads to more realistic customer expectations. Dolphin SMART company advertisements (print and web-based) cannot feature photos of dolphins and the vessel, dolphins and people, or dolphins underwater. Showing photos of dolphins close to the vessel and/or underwater raises the expectations of the passengers, “who then put pressure on the captains to satisfy them and give them what they thought they were going to get, which is really close [to the dolphins]” (Operator 2). Eliminating advertising that shows dolphins next to the vessel or near people is one way to make this less of an issue for both customers and operators, but it can also put the Dolphin SMART supporters at a disadvantage when customers are choosing a tour.

For some companies, advertising materials go out a year or two in advance, so changing the advertisements to comply with Dolphin SMART standards was difficult to do instantaneously. Initially, the impossibility of getting “potentially millions of photos back from a thousand agents” was the biggest obstacle for Operator 3, and almost discouraged him from joining Dolphin SMART. In this case, his company was allowed to proceed with certification as long as they didn’t use the unapproved photos in publishing future materials. Operator 2 was reluctant to give up his company’s favorite advertising shots of whales and dolphins close to the boat, “so people could see that really is the boat, that’s not just a file photo that somebody is using.”

The incentive for Dolphin SMART companies to change their advertising is that they can capitalize on special advertising benefits from Dolphin SMART, such as the use of the Dolphin SMART logo, a feature on the Dolphin SMART website, Dolphin SMART educational materials, a Dolphin SMART flag for the vessel (see Figure 2, above), a mention in press releases, etc. Dolphin SMART operators joined with the hope that the Dolphin SMART program's economic incentives would make them more competitive with swim-with dolphin tours by setting them apart as a more responsible, conservation-minded choice for dolphin tourists. Operator 2 has this to say about the program's advertising benefits:

> It's almost imperceptible on how it's doing marketing-wise. We can probably make more, capitalize more on the use of the [Dolphin SMART] logo and all that than we do. But I can't see that it has really helped that much, because anything that is helping in that way, we're hurting in cutting our advertising where they see dolphins swimming next to the boat."

Operator 1 says that the program is actually hurting his business, not helping it. He says that there is "no doubt" that he would have four catamarans on the Waiʻanae coast right now if he didn't have to compete with swim-with dolphin boats. In his opinion, if all of the operations were held to the same standards and followed the same code of conduct, the "cream would rise to the top" and people would choose his tour for its superior quality and service over others in the market (Operator 1). In Florida, half of the operators surveyed by Goss (2013) felt that they too were at a disadvantage by having to compete with other operators that were not bound by the same guidelines.

The Dolphin SMART operators hope is that there are "ecologically-minded" people that want to go on a boat that advertises "we support dolphins and are eco-friendly" (Operator 1, 2, 3). However, according to Operator 2, this is a hard thing for the Dolphin SMART operators in Hawaiʻi to measure. Goss (2013) also found this to be true in Florida. Even though Florida dolphin tour operators realized there could be a competitive advantage to being Dolphin SMART, the cause-marketing benefits[3] were mostly lost on them and they were swayed more by the conservation message than by the cause-marketing benefits. Operator 2 speculates that the

[3] Cause-marketing is a strategy by which companies associate their brand with a social or environmental cause with the aim to "significantly increase revenue and accrue social benefits to the company" (Goss 2013).

Dolphin SMART program is not as effective as he hoped it would be because is difficult to find people, however "ecologically minded" they are, to "put their money where their mouth is."

Reporting Harassment

A further requirement of the Dolphin SMART program is that if Dolphin SMART operators observe any illegal behavior they must report it. This would include violations of the Marine Mammal Protection Act, Endangered Species Act, or other state and/or federal regulations regarding marine mammals or ocean safety (NOAA 2014). Illegal behavior/activity is something that the Dolphin SMART operators on O'ahu say is difficult if not impossible to prove, and reporting it can stir up conflict between companies in the in the small community (Operator 1 and 2). Although there are often tensions between competitors, especially between those with different dolphin tour philosophies, a direct attack on another company by exposing illegal behavior can have unintended negative consequences for the reporting party. Operator 2 says he does not report violations because then he will be "wondering if [his] boat is going to be resting on the bottom with the mast sticking up out of the water."

Proving that harassment has occurred is something that even NOAA and Department of Land and Natural Resources (DLNR) officials acknowledge is nearly impossible due to its ambiguous definition. Operator 2 told me that "their record of prosecution is dismal, it's abysmal" and "when you can't prove it, then you know nothing is going to happen except ill will, why even bother?" No company wants their reputation within the community to suffer as a result of exposing another. Operator 1 believes that there is already enough information on the books to enforce some of the regulations regarding harassment, and he is frustrated by the fact that in order for action to be taken, there needs to be irrefutable evidence that something illegal has occurred, including video proof of the incident. He told me that in the past when offenders have been reported, “nothing happens, there is no follow up and no one ever hears about it again.”

There is also a concern that some operators might want to stop working (i.e. sharing information on dolphin/whale locations) with those that report illegal activity, and so “nobody stands up because the rest of the crowd pushes them back down” (Operator 1). This makes it difficult to facilitate the spirit of cooperation and communication in the community as set forth in the Gentleman’s Agreement (DLNR 2006) and to uphold the Dolphin SMART standards.

Another obstacle to the Dolphin SMART program’s effectiveness is the common disconnect between captains, crew and company owners. “In most operations there’s a difference in the owner and operator. Your operator is your boat captain, he’s steering the boat everyday” (Operator 5). The owner may work out of the company office and not be very involved in the “on-the-ground” day-to-day operations. He or she could be a staunch supporter of the Dolphin SMART program and be knowledgeable about the program requirements, but may not communicate that information to the captains and crew. In Operator 5’s experience, the growth of the industry has also caused a change in how dolphin tours are conducted:

> There’s a lot of new operators, and bottom line is that they’re bringing in a lot of captains that don’t have experience and I think don’t really care that much about the animals as they do about getting their paycheck.

Captains and crew may not be as motivated to abide by the program rules, which, as a result of a less interactive experience, may affect their tips and the feedback they receive online or on various social media platforms. Captains and crew are under pressure to provide a trip that meets, and hopefully exceeds, guest expectations, which may tempt some to bend the rules to provide a more memorable experience. In addition, some tours feature a “dolphin guarantee” that allows passengers to come back on another tour for free if they do not see dolphins the first time around (Operator 5). Not finding dolphins can mean a significant future loss of revenue, and gives captains even greater motivation to seek out dolphins.

Swim with Dolphin Tour Operator Perspective

The principal distinction between Oʻahu Dolphin SMART operators and those that are not is that Dolphin SMART operators do not allow their passengers to swim with dolphins. The focus of in-water "swim-with" tours is the up-close and personal experience with wild spinner dolphins in the ocean. This interactive experience and related advertising conflicts with the values of the Dolphin SMART program, which requires operators to keep tourists out of the water and 50 yards away from spinner dolphins. Aside from this obvious conflict of interest, the swim-with dolphin tour operators also have other reasons for maintaining their status quo. These reasons include having an alternative philosophy and attitude toward dolphin behavior (i.e. this is not harassment, this is a spiritual experience, the dolphins want to be there), the status quo and the current code of conduct set forth in the Gentleman's Agreement are good enough, a perceived lack of credibility for the Dolphin SMART program, and the mindset that Hawaiian spinner dolphin populations are stable (no visible changes in population or behavior). Some operators also feel that there is a cultural value to the dolphin experience that they have a right to engage in and share with visitors.

Alternative Philosophies

Operator 6, who runs a small swim-with dolphin swim tour out of Waiʻanae, believes that getting in the water with the dolphins fosters a greater understanding of the species and a greater appreciation for marine life. He states:

> I think it very necessary to understand, not so much their behavior because not everybody's out there to learn dolphin behavior, but to appreciate that if you love what you see, if you love them doing their magic and what they do naturally, and

> they're not in any cage or enclosed facility, then take care of the ocean, take care of the ocean, malama (take care of) the ocean.

For Operator 6, the experience might be worth the risk of disturbance because it is also educational, and may inspire customers to be better environmental stewards.

> I've had people come back on our boat crying. It's an emotional experience! And you have to take that to heart because they're not there for our pleasure, they're not there for our entertainment, but they might be there for our education (Operator 6).

Operator 4 feels that the dolphins are there to provide a mutual benefit, and that "they want to be there on some level." His told me:

> Everyone deserves to have that experience as long as it's done consciously, because I think the dolphins are there equally for us as we are for them, it's a mutual thing - they are as curious about us as we are about them…

When I asked if they thought spinner dolphins need protection from people, Operator 4 and Operator 6 agree that seeing the dolphins in the wild is preferable and more humane to viewing dolphins in captivity. Operator 6 thinks it is "disingenuous" to say that it's okay to keep dolphins in captivity to entertain and educate, but not okay to swim with them in the wild, in their natural habitat. He does not think that swimming with wild dolphins is something that should be looked down upon (Operator 6).

Operator 6 told me that he conducts his tours from a position of observance rather than disturbance. His crew briefs guests not to dive down, chase, or reach out to touch the dolphins if and when they swim past. Operator 4 says his captains do not corral or chase dolphins, and that they let the dolphins choose whether they want to interact with the tourists or not. They also have a briefing onboard that instructs tourists not to splash around or stick their hands out, and reminds them that "it's just a viewing experience, we're in their natural habitat, be respectful of them" (Operator 4). Contrary to the

Dolphin SMART operators, the swim-with dolphin tour operators do not feel like their tours are disturbing the animals or having a detrimental effect on the spinner dolphin population, evidenced by the following quotes:

> If they did not want to be there and interact with us, they would not be there. The ocean is vast and massive and they could be anywhere they wanted to be, but there is a mutual interest, I feel… Our philosophy is we just drop the guests and let them [dolphins] come to us. You know if they want to be there with us they will come" (Operator 4).

Furthermore, these swim-with dolphin tour operators say they have not noticed a decrease in the dolphin population.

> "It seems to be the populations are staying steady or increasing… there's still a lot of dolphins out there and they seem real healthy. There are still babies, so that's a great sign." (Operator 5)

> I think it's okay to some degree, unless there is a big decline. And I've seen mega-pods the last couple of weeks… 100 dolphin plus (Operator 6).

When asked whether he agrees with the science behind the Dolphin SMART program, Operator 6 says that although he understands that there is a debate about disrupting dolphin behavior, and he is not a marine biologist, he thinks that some operators that don't swim with dolphins but encourage them to "run on the hull" (bowride) may be just as disruptive.

Status Quo and Pre-existing Codes of Conduct

Although a moratorium on the issuance of commercial vessel permits operating from state small boat harbors involving ocean-related activities for ocean waters between Kalaeloa Point and Ka'ena Point limits the amount of permits in the Wai'anae boat harbor to 2005 levels, commercial ocean tourism on the Wai'anae Coast of O'ahu has doubled in a 10-year period (DLNR 2009). This increase has caused continuing conflict between local fishermen and dolphin tours. The fishermen often set their nets on schools of fish that congregate in the same bays in which the dolphins rest. In the past, dolphin tour boats with their loud motors and dozens of swimmers were disturbing these subsistence fishermen and compromising their livelihoods by zooming though fishing grounds during critical times. A series of meetings led by Harbormaster William Aila (who is now director of Hawai‘i's Dept. of Land and Natural Resources) led to the development of a code of conduct to facilitate greater cooperation between ocean users in the area. The West Oa‘hu Ocean Operational Protocols, commonly referred to as the Gentleman's Agreement, is a voluntary cooperative agreement between akule fishermen and dolphin tours with the aim to resolve conflict "internally' without involving state legislative agencies (DLNR 2006). With the doubling of ocean users, the Gentleman's Agreement, originally established in 2001, was revisited in 2005 to re-establish guidelines and update new users on protocols and proper conduct. The original goal of the WOOOP was to mitigate conflict between fishermen and dolphin tours as an alternative to more prescriptive measures; out of necessity it evolved into a code of conduct for and between dolphin tour operators as well.

The current Gentleman's Agreement instructs operators to work together and communicate with each other, and to conduct fishing or tourism operations in a manner that is respectful of not only other operators but also marine mammals and the environment. It has guidelines for transiting through and entering fishing/dolphin watching grounds, approaching and observing dolphins, and also logging daily counts and activity of animals to pass on to the University of Hawai‘i (DLNR 2009). Operators 4 and 6 follow a code of conduct that is based on the West O‘ahu Ocean Operational Protocols (WOOOP) and the Gentleman's Agreement. Operator 4 insists that the operators in Wai‘anae don't need an outside agency like Dolphin SMART to come in and tell them how to operate because they already had it figured out years ago. He insists that the captains communicate, keep each vessel's dolphin visiting time to 30 minutes, and that the Harbormaster regulates and makes sure that lines of communication stay open. If there is a problem, the Harbormaster gathers the operators in his office to talk and work it out amongst themselves (Operator 4) without the involvement of management agencies. The main thing is that the operators work together, along with the fishermen, to stay out of everybody's way and respect each other (Operator 6).

Economic Benefits

As discussed in the previous section, the benefits of being Dolphin SMART do not seem to have a measurable positive economic effect for its supporters thus far. It also has not affected the bottom line of swim-with dolphin tour operators, who have seen their businesses continue to grow, especially with advertising increasingly directed at the Japanese market (Operator 4 and 6).

Credibility

Aside from the lack of economic incentives to change their business model, another reason cited by the swim-with dolphin tour operators for their lack of support is that the Dolphin SMART program has lost much of its credibility as an effective program to reduce impacts on the dolphins. The community of dolphin tour operators is small and they operate within the same geographic area. Everyone knows who participates in Dolphin SMART and who does not, and they know who follows the rules and operates by a strict code of conduct. The issue with the credibility of the Dolphin SMART program stems from the non-Dolphin SMART tour operators observing behaviors by Dolphin SMART vessels that are not in line with the requirements of that program.

Dolphin SMART operators are not supposed to encourage bowriding and should put their vessels in neutral when dolphins are nearby, but Operator 6 implied to me that this behavior has continued despite the program's stipulations. Operator 5 has also seen operators that are "quote on quote" Dolphin SMART engaging in bowriding dolphins, and doubts the credibility of the Dolphin SMART code of conduct.

The Dolphin SMART Hawaiʻi Facebook group page (sponsored by the Wild Dolphin Foundation, a dolphin tour and research operation), has posted photos of Dolphin SMART boats seemingly operating in ways that are not dolphin SMART. Photos claim to show bowriding, maneuvering through a pod of resting dolphins, and even crew members attempting to swim with dolphins as tourists watch (Wild Dolphin Foundation 2014). Some of the photos claim to be of Dolphin SMART vessels only a week after the initial Dolphin SMART Hawaiʻi training. Another page from the Wild Dolphin Foundation website outlines in detail additional violations of Dolphin SMART guidelines by Dolphin SMART certified operators (Wild Dolphin Foundation 2014). Operator 5 says that "once that happened… it totally took the integrity of the program and it flushed it, for everybody…the news spreads fast in Waiʻanae." Swim-with tour operators cited Dolphin SMART boats approaching dolphins too closely (within 50 yards), encouraging bowriding, and positioning themselves between the dolphins and the open ocean. When this happens, "it spreads like wildfire and next thing you know, everyone says 'ah forget about it, let's get back to work" (Operator 5).

Hawaiian Culture

There is also a cultural element to the tours operated by the two swim-with dolphin operators interviewed for this research. Several tours employ Native Hawaiians who have a lot of water experience and an innate knowledge of the Hawaiian spinner dolphins and other marine life. Operator 4 says:

> These guys were born and raised in Waiʻanae. They're water people, so they know the environment and they know exactly what attitude we should be approaching the mammals… they're very tuned in. They know exactly what's gonna happen, they know even to the point of where they [the dolphins] are gonna

> be. It just amazes me because I think, they're just born and raised here and they just have those natural instincts built in.

Operator 6 employs local guides who tell customers about ancient Hawaiian myths and legends and educate them about the land and the sea and the Hawaiian people. Having swimming with dolphins as a "hook" to get people to come out and learn and participate in a cultural experience is a good way of attracting customers (Operator 6). Operator 6 feels that they have a right to share their culture and history with visitors, and that swimming with the dolphins is one of the best ways to feel a connection to the sea.

Impact of Proscriptive Regulations

In addition to supporting the Dolphin SMART program and encouraging its adoption in the Hawaiian Islands, NOAA continues to develop more proscriptive regulations regarding Hawaiian spinner dolphins. These regulations, if signed into law, could change the nature of many dolphin tours.

Dolphin SMART

Mandatory regulations would even the playing field for Dolphin SMART operators. Competing with swim-with dolphin tours does, without a doubt, hurt business for Dolphin SMART operators (Operator 1). Dolphin SMART operators are in favor of mandatory regulations, which would make it difficult for their competitors, swim-with dolphin tours, to continue operating at status quo without breaking the law or violating the MMPA. All of the companies would have to compete with each other in a way that was fair (Operator 1) and the "good" operators would not be "punished" for doing the right thing (Operator 3). Regulation would take also some of the financial pressure off of the Dolphin SMART tours, who feel that their bottom lines are hurt by competitors offering swim-with dolphin tours (Operator 1, 2 & 3).

According to one manager, despite advertising responsibly in accordance the Dolphin SMART requirements, “almost on a daily basis we get complaints they [passengers] were sold tickets to swim with the dolphins and they’re not being allowed to swim with the dolphins on our boat” (Operator 3). As described earlier, often the ticketing agent that has the initial face-to-face interaction with a guest is far away in Waikiki or even Japan, and the guest may be sold the tour based on unrealistic expectations. Operator 3 is finding it hard to hold off on swimming with dolphins while the other companies take that market share, and believes that “by doing the right thing, we’re losing business.” Operator 2 has “passed up millions of dollars in revenue by just flat choosing not to swim with dolphins, and I’ve had a lot of very strong Japanese marketers that are trying to get me to do it.” It is tough for Dolphin SMART operators to keep saying “NO” to swimming with the dolphins and if NOAA doesn’t come up with a plan soon, they may have to give in to the big demand to swim with dolphins (Operator 3). These operators want to be Dolphin SMART because of their commitment to conservation, but not at the expense of their livelihoods.

Since 2012, NOAA’s Office of General Counsel has brought charges against six tour boat operators in the Gulf Coast, resulting in $35,000 in fines for violating the harassment clause of the Marine Mammal Protection Act (Thibodeau 2014). Most recently, in July of 2014, a dolphin tour operator in Panama City Beach, Florida, a place considered a “hotspot” for harassment and take activities, was fined $4,500 under the MMPA for feeding wild dolphins (Vail 2014; Thibodeau 2014). Currently, Dolphin SMART Hawai‘i operators are frustrated by a perceived lack of enforcement presence and follow-through and by a poorly defined definition of “take” as it pertains to interactions with spinner dolphins. Mandatory regulations could also give the industry a greater motivation to self-police. Competitors that aren’t following rules hurt other operators that ascribe to them, giving responsible operators more reason to report infractions to enforcement and to cite frequent violators. Operator 2 believes that a regulatory scenario should include realistic fines for violations, where they are not “so severe that people don’t want to enforce them,” but still protect the species their tours depend on. Operator 5 envisions a scenario where the dolphin tours can “still bring in some income, still create awareness, and at the same time the animals can still do their thing.” However, the most effective way to motivate people to follow regulations is their “pocketbook,” and enforcement agencies should “put fines on these people, to bring it back to the bottom line, so that would really motivate the owner to respect these guidelines” (Operator 5).

Studies show that tourists support increased management measures. Shapiro (2006) investigated the preferences of whale watch passengers with regards to marine management in Maui, Hawaiʻi. The goal of her research was to determine the preferences of whale watch tourists on Maui whale watch tours, and to gauge their support for different management strategies in the Hawaiian Island Humpback Whale National Marine Sanctuary (HIHWNMS). She surveyed whale watch tourists on two different vessels during the winter 2005 whale season in Maui, Hawaiʻi. The surveys gauged the importance of experiences/activities such as feeding or photographing marine life, learning about marine life from written or oral material, etc. They also questioned whale watch tourists about their support for a user fee system to further protect the marine life in the whale sanctuary. Shapiro found that most whale watch passengers support increased management and regulations, such as vessel speed limits. Results showed that whale watchers were generally supportive of implementing a user fee system in the sanctuary, as well as increased enforcement of regulations. The results are useful to the sanctuary and marine managers in regard to the development of future whale watch tour attributes and can also be applied to the development of spinner dolphin tourism management strategies.

Swim-with-dolphin Tours

The swim-with companies do not view swimming with the dolphins as a form of harassment. Operator 4 says that from his experience the dolphins are there interacting with people because they want to be, and that they are just as curious about us as we are about them. He points out that they have the entire ocean and can swim away if they choose (Operator 4). Operator 6 believes that to view them in the wild where they have a choice to come and go as they please is a lot more humane than having them in captivity, where they have no choice to leave.

Though they don't agree that further regulation is necessary, the swim-with dolphin tour operators have a mostly positive outlook regarding future regulations that may eventually prohibit them from swimming with dolphins. Operator 6 believes that although it might negatively affect his business because swimming with dolphins "is a very intricate portion" of what his company does, it is not "the whole of what we do." Operator 4 believes that if it is fair for everyone, it is a good thing to regulate it rather than to shut it down completely, which would deny people and animals the chance to share a special connection.

Apart from swimming with dolphins, there are other unique and valuable elements of the dolphin swim tours that those operators believe will keep them in business, even in the event of more proscriptive regulations. The swim-with dolphin tour companies that were interviewed for this project employ mostly local Hawaiian people who have grown up in and around the water and aim "to share with the folks a little bit of our culture and to have a deeper appreciation for the things that are found within the ocean" (Operator 6). They focus on teaching guests about Hawaiian history and culture, coral reefs, ecosystems, and approach it in a "very spiritual sense"

(Operator 4). They believe they can retain their share of the market by giving their guests the "experience of what Hawaiʻi is, what it was in the way of the ancients" (Operator 4) and adapting to whatever it is they are asked to do.

An additional reason the swim-with tours don't support a more proscriptive form of regulation is because they already follow the code of conduct outlined in the Gentleman's Agreement. They do not believe that the dolphins need the support of mandatory regulations because what they have observed over time is that the dolphins are not in trouble. As mentioned previously, they see populations remaining stable or growing, with plenty of new babies born every year. With the Gentleman's Agreement there is already an "amazing coordination" (Operator 4) going on between the vessels each day where the captains are communicating, taking turns, and using common sense to manage difficulties without an outside agency coming in to tell them how to do it. For these operators, the existing code of conduct works. Operator 4 states:

> It's a kind of very organic approach… instead of making it structured and we've gotta do this and that. Sometimes you over-regulate things, structure things, and it just smothers everything.

In Florida, Goss (2013) also found that some companies were resistant to outside influence, and did not think it was necessary for a government or outside agency to come in and tell them how to operate.

IV. Conclusions and Recommendations

In the introductory meeting to launch Dolphin SMART in Hawaiʻi, the program managers stated that they gauge the success of the program by how quickly operators come onboard and how many join proportionate to the amount of operators involved in that geographic area. In Hawai‘i, there are five Dolphin SMART operators: three in the study area on O‘ahu that were interviewed for this research and one on both Maui and Kauai. In the study area for this research (O‘ahu) there are ten dolphin-based tours in operation. The program has been in Hawai‘i for several years now and does not appear to be taking off.

Additionally, for the O‘ahu operators that are Dolphin SMART, the certification came mostly as a result of the program’s operating protocol being in line with what these operators were already doing. In Florida, Goss (2013) found that many eventual Dolphin SMART operators did not know that their interactions with bottlenose dolphins could be detrimental to their health and sustainability. She surveyed several operators who became Dolphin SMART after they attended the initial Dolphin SMART meeting and were educated about the program and the science behind it. In Hawai‘i, so far only the operators who were already mostly compliant with the program and “didn’t swim with dolphins anyway” have decided to join (Operator 1). The changes to their operations were manageable (though not inconsequential), and although there were challenges along the way, they were able to transition relatively quickly to be in compliance with Dolphin SMART policies. These operators welcomed the program as a way to lend support to their existing values and dolphin viewing (but not swimming) tours. In Hawai‘i, there has not yet been any uptake of the program from tours that swim with dolphins because the drivers to participation are not worth making such a change.

There are several identified needs to increase the efficacy of the Dolphin SMART program in Hawai‘i. The following identified needs support an increase in uptake and support for the Dolphin SMART program: more rigorous, updated scientific studies with input from community experts, quantifiable economic benefits for program participants, better training and reinforcement for captains and crew, and more regular and transparent enforcement.

Scientific Evidence

For the Dolphin SMART program in Hawaiʻi to achieve its goals and effect change, local dolphin tour operators must be convinced that there is a problem with the dolphin tour industry operating as it is and that lending their support to the program will make an effective contribution to finding a long-term solution. Many of the long-term studies in the literature used to support the Dolphin SMART program mission are from places other than Hawaiʻi, and are based on different species of dolphins with potentially very different habitats and behavioral patterns. Although these case studies provide useful examples and valuable lessons that can be related to Hawaiian spinner dolphins, not all variables are the same. More rigorous population studies and long-term analysis of the effects the tour industry has on Hawaiian spinner dolphins are necessary to recruit more operators to join the Dolphin SMART program. The last comprehensive survey, conducted in 2002, estimated the population to be around 3,351 individuals (Caretta et al., 2011), but it did not count coastal associated populations, and used less than ideal methods. More up-to-date information is necessary to convince the skeptics that the industry might not be sustainable under current conditions. Operator 5 believes that "if someone were to take the time and actually do this research and start to get these numbers and really identify that we are putting them at risk…then we can make some changes." The work of the Murdoch University Cetacean Research Unit's Spinner dolphin Acoustic, Population Parameters and Human Interactions Research (SAPPHIRE) Project, which is funded in part by NOAA, is a good start at making more concrete population estimates and gathering essential data for the island-associated populations of spinner dolphins in Hawaiʻi (Murdoch University 2014).

For some of the local stakeholders involved with dolphin tourism, what they see with their eyes does not mirror the science that NOAA and researchers claim as the basis for the Dolphin SMART program. Many of the operators on Oʻahu's leeward coast and elsewhere have spent so much “hands-on” time on the water observing spinner dolphins and other wildlife that short-range surveys by scientists who may only spend a few months doing research are not as convincing to them as their own experience and years of personal observation (Operator 5). These local experts want more contributions from local people who have this extensive and diverse local knowledge from their years of hands-on experience (Operator 5). Operator 5 states that “some of those guys have been on the water for 50 years… that’s the people we need to bring in” to supplement shorter-term scientific research. Many people use the coastline and near shore waters for fishing and recreation, and many have important knowledge to pass on to managers and to those conducting tours along the coast. Their experience can be invaluable and their connections to the community can also be very helpful in gaining support for a program like Dolphin SMART. They may also have insightful information regarding other threats to spinner dolphins, like how resting habitats and coastlines have changed over time, or how climate change, development, pollution, military operations or other confounding factors may also be contributing to a possible decline in spinner dolphin populations.

Economics

Spinner dolphins are not currently held in captivity anywhere in Hawai’i, so one must seek them out in the wild to experience them. The difficulty is finding the point at which social and economic benefits are maximized while minimizing or eliminating harm to wildlife. Although the ecological costs incurred at present may far outweigh the current economic benefits in the future, swimming with dolphins is still a profitable endeavor for those that offer it. The current Dolphin SMART benefits and regulations protecting marine mammals do not motivate change to more sustainable protocol. For the Dolphin SMART program to attain further success amongst Oʻahu operators, in the absence of mandatory regulations, there is an identified need for greater economic incentives. The Dolphin SMART companies support the program and its mission, but they are first and foremost business owners that must compete in the market and make a profit to stay in business. If abstaining from swimming with the dolphins ultimately causes them to lose their share of the market or put a significant dent in their profits, they will either go out of business or be faced with the choice to swim with dolphins (Operator 2 and 3). The economic incentives, namely publicity and advertising, for joining this incentive-based program have not yet proved to be of significant economic value to the Dolphin SMART operators interviewed for this research.

Improving the visibility of Dolphin SMART Hawai‘i through social media, educating travel agents and activity vendors, and making the economic incentives more valuable would increase the value of the program in Hawai’i. Operator 1 believes that people would pay more for the Dolphin SMART brand “if there were TV shows or a public service announcement” that made the program more recognizable. If the spinner dolphins got as much attention as the endangered green sea turtle, the guests would all know better than to swim with spinner dolphins, just like they all know better than to touch a turtle or swim with a humpback whale (Operator 1). Operator 2 also wishes that the Dolphin SMART program could have a more active public education campaign, and has a few suggestions for improvement:

> …putting brochures out is such a passive way of doing it. People have to be interested enough to actually read that through that thing. I wish, if they had the money they could get it out on TV and maybe on PBS, and tell people what the Dolphin SMART is and how there are a few boats that do it, and if you see this logo that is what this boat is into and what they are all about, and then people might realize ‘oh gosh they do need protection’, and it would be cool to support those boats that support this program.

In Florida, where the Dolphin SMART program has been in effect since 2007, NOAA and its partners developed an animated public service announcement to educate the public about why it is “illegal and harmful” to feed wild dolphins (Thibodeau 2014). Operator 2 thinks that the public could also help with monitoring potential harassment and enforcement of the MMPA, even if they are just standing on shore with cameras and binoculars. This would not require a lot of money and would get the public involved in conservation issues.

Training and Education

Limited resources for enforcement of the MMPA, as well as its ambiguous definition of “harassment”, allow continued pressure to be put on island-associated populations of the Hawaiian spinner dolphin. An aggressive public education campaign and a less ambiguous definition would be beneficial to all parties. None of the operators wants to break the law, but there is a distinct split in how harassment has been interpreted in Hawai‘i. Having a more consistent DLNR enforcement presence, greater transparency and follow-up of reported infractions, as well as a better definition of how the Marine Mammal Protection Act is enforced might encourage greater participation in Dolphin SMART. Making sure ALL operators are held to the same standards of the law is crucial not only to the credibility of the Dolphin SMART program, but to maintain the credibility of the DLNR and other relevant enforcement agencies who are tasked with protecting Hawai‘i’s resources.

Another obstacle to gaining further support for the Dolphin SMART program on O‘ahu is that the program lost some of its credibility early on. When the initial Dolphin SMART program participants were seen breaking the rules with no obvious consequences, it looked to some like just another meaningless sticker/certification that these companies stuck on their boat to look more eco-friendly (Operator 5). The skeptics wrote the program off and it lost some of its significance as something that was a cut-above, despite its intended goal of and potential to provide a valuable competitive advantage in the market. The swim-with dolphin operators that would need to overhaul their business plans and alter daily operations to meet Dolphin SMART requirements have no motivation to join when they do not see the Dolphin SMART companies consistently following the rules (Operator 5).

Making sure the Dolphin SMART companies are in compliance with Dolphin SMART values will lend more credibility to the program as it reaches out to the outer islands, as well as set a better example for other Oʻahu operators. This requires greater oversight by NOAA's Dolphin SMART coordinators and greater effort to observe and enforce proper conduct of the Dolphin SMART businesses. A more formalized training program could be helpful for the Dolphin SMART participants and for the industry in general to increase the effectiveness of the education program onboard the vessels. Since there is often a high turnover for captains and crew aboard some vessels, having an annual or bi-annual training or certification for crew, captains and owners of Dolphin SMART vessels would be beneficial. Some companies on Maui already require their employees to go through Ocean Awareness Training, a program that results in a C.O.R.A.L. (Care of our Culture, Oceans, Reefs and Animal Life) certification (personal observation). Having a similar training geared towards Dolphin SMART Hawaiʻi operators would be educational and beneficial for Dolphin SMART vessels and their crew. A more involved recertification program might also help to reinforce the program's values as long as the requirements aren't too rigorous to discourage further participation. Monitoring by Dolphin SMART program managers in the form of "secret shoppers" keeps supporters on their toes and may also encourage more respectful and "dolphin-smart" viewing practices.

Providing crew with formal training will also improve the quality of education that gets passed on to tourists, who take that knowledge with and them and can inspire others to make better choices (Andersen and Miller 2006, O'Hearn 1982). Effective education onboard the vessel as well as in advertising and booking agencies is essential to spreading the Dolphin

SMART mission. To make joining the Dolphin SMART program more effective, the onboard education needs to provide the customer with accurate information about why they should be concerned about the Hawaiian spinner dolphin, why they should support Dolphin SMART, and why conservation is important. Tours that currently offer the experience of swimming with dolphins may feel like they will lose a significant portion of business if they no longer allow close, in-water interaction, but these impacts can be partly mitigated with a well-designed onboard education program. Dolphin tourists may be satisfied with a tour whether they are allowed to swim with dolphins or not, an important point for the Dolphin SMART program managers to emphasize when recruiting participants for their program.

Regulation and Enforcement

Though they have adopted an optimistic attitude in the face of a regulated future, the swim-with dolphin tour companies hold out hope that they will be able to carry on with their current program of swimming with the dolphins. They feel as though the pre-existing framework of the Gentleman's Agreement and the permit moratorium in Waiʻanae is satisfactory protection for the dolphins and offers sufficient guidance for the companies to operate in accordance with the NMFS recommended guidelines. However, in spite of the moratorium on commercial permits in Waiʻanae, the industry has continued to expand from private harbors like Ko Olina and from shore-based tourists, putting increasing pressure on the spinner dolphins and their habitat.

Dolphin SMART operators are in favor of regulations that will put all operations under the same rules and even the playing field for all commercial dolphin tours, as well as activities from shore-based tourists. A recently published study by Tyne et al. shows that populations of island-associated spinner dolphins on Hawaiʻi Island may be substantially underestimated, and, with continued pressure, may continue to decline (Tyne, Pollock, Johnston, & Bejder, 2014).

Examples from Tanzania (Christiansen, Lusseau, Stensland, & Berggren, 2010) and New Zealand (Duprey, Weir, & Wursig, 2008) show that voluntary guidelines or codes of conduct did not eliminate the impacts of tourism on local dolphin populations. Wiener et al.'s 2009 study cited boats in Hawai'i ignoring the NMFS voluntary guidelines by guiding the dolphins on their bow directly to swimmers.

Regulations provide a mechanism by which the guidelines can be enforced (Tyne et al. in Higham 2014; Allen et al. 2007). Tyne et al. recommend that management agencies restrict access to protected areas during the time when "critical behaviors occur" a suggestion that NOAA is exploring with the possible development of regulations regarding time area closures. This would be especially important for spinner dolphins, whose resting bays and critical resting times are easily determined because of the regularity with which they are seen. Tyne et al. (in Higham, 2014) also suggest that a licensing system be considered in greater depth, whereby management agencies would have the authority to alter or revoke the licenses of commercial dolphin tour operators should violations occur. Requiring commercial operators to have a dolphin-watching permit would ensure that all operators are subject to the same regulations and provided with the same educational resources. Tyne et al. conclude their study of dolphin tourism with this statement that can be applied to future management of spinner dolphins in Hawai'i:

> Without enforcement or legislation, management plans may fail to meet their goals and, ultimately, fail to protect cetacean populations and the long-term viability of the cetacean-watch tour operations" (Tyne et al. in Higham, 2014, p. 255).

In the meantime, for the Dolphin SMART program to be more successful in gaining support and protecting dolphins in Hawai'i, it needs to restore its credibility by more assertively enforcing the program guidelines for its supporters. To achieve this end, it needs to provide more accessible and consistent training for captains and crew by providing a training and certification meeting several times a year, and following up with tour company owners to make sure they are implementing accurate onboard education programs and following advertising protocols. The Dolphin SMART program managers should also work on a more visible public outreach campaign to enhance the cause-marketing benefits for supporters of Dolphin SMART, and to make it more appealing to other qualified companies that have not yet joined. Besio et al. (2008) notes that Australian companies name individual dolphins and offer "adopt-a-dolphin" programs, and also sell plush, cuddly toys to customers to directly and indirectly promote a conservation message. Creating a PSA, educating concierge and activities vendors, publishing news articles, and participating in more public outreach at tourist hotspots (for example, the Waikiki Aquarium or the Waikiki Zoo), and publicly recognizing current Dolphin SMART operators would also help make Dolphin SMART certification more valuable.

With increasing threats from climate change, expanding coastal development, runoff from agriculture and urban sources, and other threats to spinner dolphins and their habitat, the Hawaiian spinner dolphin will need to be protected as much as possible from human disturbance. Educating dolphin tourists about dolphin conservation through responsibly executed dolphin viewing tours is the key to spreading a conservation message. Consistent enforcement of the Marine Mammal Protection Act and enforcement of anticipated regulations will be essential to maintaining the credibility of NOAA and of DLNR enforcement and to maintaining resilient and successful spinner dolphin populations in Hawai‘i.

Appendix A: Interview Guide: Dolphin SMART Operators

Thank you for agreeing to be a part of my Master's thesis research and participating in this interview. I would like to find out a little more about your company and your involvement in the Dolphin SMART program.

1) What is your position in the company, and for how long have you held this position?
2) How did you get involved in the dolphin tour industry?
3) How integral to your business is dolphin viewing?
4) How has the dolphin tour industry developed/changed over the past 10 years? Has development been sustainable?
5) How did you hear about the Dolphin SMART program?
    a) Why did you choose to become involved in Dolphin SMART Hawai‘i?
6) Prior to Dolphin SMART, did your crew adhere to a code of conduct when dolphins were encountered? (If yes, please explain).
7) How difficult was it for you to comply with the Dolphin SMART Hawai‘i program?
    a) What changes did you have to make to your tours in order to be Dolphin SMART?
8) What economic benefits have you experienced as a Dolphin SMART Hawai‘i company?
    a) How have the Dolphin SMART advertising perks (Dolphin SMART flag, website links, educational materials, Dolphin SMART logo) been beneficial to your business?
    b) Do you think customers are willing to pay more for the Dolphin SMART brand?
9) One of the main tenets of the Dolphin SMART program is to provide educational materials and an educational briefing onboard. How do your tours comply with this part of the program?

a) Are captains and crew aware of the Dolphin SMART program? Do they receive briefings or training regarding Dolphin SMART guidelines? (If yes, describe the training and its frequency).

10) Do you think the current body of research on Hawaiian spinner dolphins is sufficient to support the introduction of the Dolphin SMART program to Hawaiʻi (i.e. dolphins need rest during the day, humans and boats cause disturbance)?

11) Do Hawaiian spinner dolphins need to be protected from human disturbance? Why or why not?

    a) Does the Dolphin SMART Hawaiʻi program reduce disturbance to spinner dolphins?

12) NOAA is in the process of developing mandatory regulations concerning Hawaiian spinner dolphins, which may include approach/distance limits, time area closures, etc. Are mandatory regulations necessary to protect Hawaiian spinner dolphins from disturbance?

13) How do you feel these regulations will affect your business in comparison to your competitors that are not Dolphin SMART?

14) What level of enforcement presence is needed to ensure compliance with regulations, such spatial closures, and how severe do the penalties need to be for violating them?

15) What do you think would be the best way to protect Hawaiian spinner dolphins while still allowing tourists to enjoy them in the wild?

16) What suggestions do you have to make the Dolphin SMART program more successful?

    a) What do you think are the main reasons that other local companies are not Dolphin SMART certified?

17) How many vessels does your company operate?

18) How many employees do you have?

Appendix B: Interview Guide: Non Dolphin SMART Operators

Thank you for agreeing to be a part of my Master's thesis research and participating in this interview. I would like to find out a little more about your company and how you conduct daily tours with the local spinner dolphin population.

1) What is your position in the company, and for how long have you held this position?
2) How integral to your business is dolphin viewing?
3) Do your tours regularly include swimming with dolphins?
4) The MMPA defines harassment as "any act of pursuit, torment or annoyance which has the potential to either: a. injure a marine mammal in the wild, or b. disturb a marine mammal by causing disruption of behavioral patterns, which includes, but is not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." Have you noticed signs that dolphins are disturbed by human activities, including dolphin tours?
5) Do Hawaiian spinner dolphins need to be protected from human disturbance?
6) When interacting with dolphins, does your crew have a code of conduct or set of procedures that is followed regularly (to minimize disturbance)? (If yes, please explain in detail).
   a) Do most tourists listen to and follow directions with regards to this code of conduct when swimming with the dolphins?
7) Do you offer an educational briefing on your tour(s)? Please explain.
8) NOAA is in the process of developing new mandatory regulations with regards to the Hawaiian spinner dolphin. These regulations could include approach distance limits, time area closures, etc. How would these potential regulations affect your business?
   a) How would you be able to change your tours to be in compliance with these regulations without compromising your bottom line?

b) How will you keep your share of the tourist market? (What distinguishes your business from other similar companies?)

9) How would regulations affect you in comparison to your competitors? Will you be worse/better off?

10) Are you familiar with the voluntary Dolphin SMART Hawai‘i program?

   a) Have you attended Dolphin SMART training?

   b) What are the main reasons why you have decided not to become a Dolphin SMART recognized operator?

11) Do you think current body of research on Hawaiian spinner dolphins is sufficient to support the introduction of Dolphin SMART to Hawai‘i (i.e. dolphins need rest during the day, humans and boats cause disturbance)?

   a) Is it sufficient to support the development of mandatory regulations? Are they necessary?

12) What would motivate you to become Dolphin SMART in the future? Do you think the operators that are Dolphin SMART certified have an advantage over those who are not?

13) What do you think would be the best way to protect Hawaiian spinner dolphins while still allowing tourists to enjoy them in the wild?

14) How many vessels does your company operate?

15) How many employees do you have?

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