

THE IMPACT OF THE TERRESTRIAL BASKING EVENT OF HAWAIIAN GREEN  
SEA TURTLES ON VISITORS AT HO'OKIPA, MAUI

by

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## ABSTRACT

In Maui, marine tourism includes Hawaiian green sea turtles that emerge from the ocean to bask on the sand, at Ho'okipa Beach Park. In no other location in Hawai'i, do the green sea turtles bask so consistently and in the highest numbers, as they do at Ho'okipa Beach. With the event drawing approximately 500 visitors to the beach daily, a local non-profit, Hawai'i Wildlife Fund, aims to protect the turtles by providing interpretation to visitors. This research examined the impact of the terrestrial basking event of the Hawaiian green sea turtles on visitors at Ho'okipa, Maui. The objectives were: 1) to identify if visitors transitioned into more responsible marine tourists by adapting the outcome indicators of visitor satisfaction, learning, attitudes and behaviours, from Orams' marine-tourist model, 2) measure the interpretation efforts of Hawai'i Wildlife Fund, and 3) help aid in the protection of the basking green sea turtles. Results demonstrated that visitor transition did not occur and could not be confirmed on visitors who expressed good intentions, without the pursuit of longitudinal studies. This outcome notwithstanding, the measured Orams outcome indicators show there is great visitor satisfaction in the event itself and viewing the basking sea turtles in their natural environment. Visitors connected emotionally to the turtles, which facilitated their learning through the interpretation programs of the Hawai'i Wildlife Fund. The programs impacted the viewing experience and demonstrated that emotion can transition visitors. Visitor attitudes reflected the knowledge of what constituted a responsible tourist, yet many disregarded the signage, boundaries, and suggestions of Hawai'i Wildlife Fund volunteers. This reflected a mixed and somewhat conflicted viewing experience for many visitors. The most deficient area of Orams outcome indicators was visitor behaviour. Survey fatigue occurred in this area and

while there were visitors who exhibited good intentions, information on how to get involved with Hawai'i Wildlife Fund and help the turtles on holiday and when visitors returned home, was not realized. The findings enable the author to provide the Hawai'i Tourism Authority and Maui County with insight on how this basking event impacts visitors. Results also offer managerial strategies from Orams' model as recommendations to aid in the visitor and site management that supports Maui County, Hawai'i Wildlife Fund, and the protection of the basking Hawaiian green sea turtles, providing a memorable viewing experience for visitors.

**keywords:** marine tourism, sea turtles, tourism management, wildlife viewing, responsible tourist, Hawaii Wildlife Fund, Ho'okipa Beach Park.

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## ABBREVIATIONS

CBSM - Community-Based Social Marketing

DPS - Distinct Population Segment

ESA - Endangered Species Act

HWF - Hawai'i Wildlife Fund

ICMTS - International Congress on Coastal and Marine Tourism Society

KMO - Kaiser-Meyer-Olkin

LAC - Limits of Acceptable Change

NCWOR - Non-Consumptive Wildlife-oriented Recreation

NOAA - National Oceanic Atmospheric Administration

OPT - Otago Peninsula Trust

SANParks - South African National Parks

SPCA - Society for the Prevention of Cruelty to Animals

SPSS - Statistical Package for the Social Sciences

SST - Sea Surface Temperature

TRUREB - Thompson Rivers University Research Ethics Board

UNWTO - United Nation's World Tourism Organization

U.S. - United States

WWF - World Wildlife Fund

## CHAPTER 1

### INTRODUCTION

#### **1.1 Purpose and Background**

Coastal and marine tourism is a central component of many key tourism destinations. For the United States, the second most visited country in the world (U.S. Travel Association, 2015), 85% of its tourist revenue is generated from its marine environments (Clein-Sain, B., Knecht, R.W., & Foster, N., 1999). In 2016, visitors voted Maui the best island destination in the U.S., for the 23<sup>rd</sup> consecutive year (Maui Now, 2016). Maui's beaches are special for many reasons, including the island's green sea turtles, which emerge from the ocean to bask on the sand at Ho'okipa Beach Park.

Terrestrial basking is a behaviour unique to specific populations of green sea turtles located in Hawai'i, the Galapagos, and the Wellesley archipelago of Australia (Van Houtan, K.S., Halley, J.M., & Marks, W., 2015). The basking event in Maui, draws upwards of 500 visitors per day (H. Bernard, personal communication, November 26, 2016). On the beach, a local non-profit, Hawai'i Wildlife Fund, uses interpretation as a visitor management strategy in pursuit of protecting the turtles listed as 'threatened' under the Endangered Species Act (NOAA Fisheries, 2016).

#### **1.2 Goals and Conceptual Framework**

The goal of this research is to examine the impact of the terrestrial basking event of Hawaiian green sea turtles on visitors at Ho'okipa Beach Park, Maui, U.S.A. Qualitative and quantitative survey results will profile five areas: visitor satisfaction, learning, attitudes, behaviours, and socio-demographic information. Within these areas, visitors will be asked to determine the items important in achieving a

satisfying viewing experience, the information they gained during the basking event and any knowledge of sea turtle viewing guidelines prior to the event. Queries concerning visitor attitudes will be directed towards the basking event, sea turtles, visitor conduct, and what being a responsible tourist means to them. Finally, questions on visitor behaviour will address respondents' participation in conservation activities, their barriers to participation if they are not involved, what pro-environmental habits they currently hold, and how they will help the basking sea turtles once they return home.

The proposed research will adapt Orams' marine tourism management model (1999) as a guiding framework, to determine if visitors transition into more responsible tourists after viewing the basking turtles. It is desired that the results from this survey will help improve marine tourism management at Ho'okipa Beach Park and aid in the protection of the basking Hawaiian green sea turtles.

### **1.3 Thesis Outline**

This thesis will be organized into six chapters. In chapter 2, a literature review will summarize natural events, wildlife tourism management frameworks, Ho'okipa Beach Park and Hawaiian green sea turtle research. Chapter 3 will outline the methodological approach of the proposed research, while chapter 4 will present the results. In chapter 5, there will be a critical discussion and analysis of the results in context of the literature. Chapter 6 will summarize conclusions, limitations, and recommendations of the investigation.

## CHAPTER 2

### LITERATURE REVIEW

#### **2.1 Introduction**

The International Congress on Coastal and Marine Tourism Society (ICMTS) defines coastal and marine tourism to be inclusive of “*recreational activities which involve travel away from one’s place of residence which have as their host or focus the marine environment and/or the coastal zone*” (p. 9) (ICMTS, N.D.). Examples of recreational activities include common beach and oceanic leisure interests, boating, fishing, and wildlife watching (ICMTS, N.D.).

This sector of the tourism industry has increased substantially, with 86.0 million U.S. residents, 16 years or older, participating in wildlife-watching activities exclusively. The US Department of Interior, Fish and Wildlife Service (2016) reports that “19.6 million participants, 83% of all away-from-home wildlife watchers,” cite wildlife watching as their most prominent pursuit. This figure is significant, since the U.S. has been named the world’s second largest tourism spender, according to a 2016 United Nations World Tourism Organization (UNWTO) report on international tourism expenditures (GTP, 2017).

With mass tourism in mind, tourists often seek viewing experiences that offer personally-defined authenticity and satisfaction, for which the observation of wildlife often occurs in the animals’ natural environment and which can include the quest for and curiosity of, natural events. With that quest emanates a great necessity for tourism management practices that protect the safety and well-being of wildlife populations, while providing visitors with a memorable viewing experience. Interpretation is often included in these practices, to engage, inform, and manage

the visitor. Such is the case for the basking Hawaiian green sea turtles at Ho'okipa Beach Park, Maui.

This chapter provides a summary of literature central to this study and is organized around three themes: (1) natural events and the visitor experience, (2) wildlife tourism management frameworks, and (3) Ho'okipa Beach Park and Hawaiian green sea turtle research.

## **2.2 Natural Events and the Visitor Experience**

According to Kruger, Viljoen & Saayman (2013), natural events are defined as “events that occur in a specific place and at a specific time, lasting from a few seconds to a few weeks and are not organized by humans” (p. 3). They can be categorized into earth, sky, animal, bird, water, and plant events (Kruger, Saayman & Hull, 2018). Kruger et al. (2018) conducted research to profile the motives of natural event visitors at the 2014 ‘Salute to the Sockeye’ salmon run, in British Columbia. Annually, the natural water event hosts hordes of spawning salmon on the Adams River, with every fourth year cyclically displaying a large run (Adams River Salmon Society, 2018). In 2014, the river held a large run of 19 million salmon (Adams River Salmon Society, 2018).

To commemorate this event, the Adams River Salmon Society holds a celebration in Roderick Haig-Brown Provincial Park, where the Adams River runs. Food vendors are present, along with interpretive slide-shows, printed information, facilitated talks, indigenous dance performances, and souvenirs.

A motivational profile was utilized to segment visitors, resulting in a tourist typology. The typology could then be used to evaluate the motives of viewers that attend the salmon event, determine the impacts which constituted a memorable

viewing experience for each segment, and develop marketing strategies toward the visitor segments, accordingly.

The results of this study concluded that visitors travelled to natural events simply to appreciate the genuineness of the spectacle, have their lives enhanced, and become educated. Kruger & Saayman (2017) determined the factors important to visitors for a memorable viewing experience included: “photography, proximity and authenticity, accessibility, managed encounters and tranquility, splendour and amazement, and primary and secondary interpretation” (p. 6). The visitors were segmented into Novelists, Naturalists, Enthusiasts, and Escapists (Kruger et al., 2018). Their motives for witnessing the event involved lifestyle and nature experience, annual commitment and social interaction, unique experience and escape, and education and photography (Kruger et al., 2018). The Novelists were motivated by the lifestyle/natural experience and unique experience/escape; The Naturalists by the lifestyle/nature experience and by education and photography factors; Enthusiasts were motivated by the entire event; and Escapists for the unique experience and escape traits the event offered (Kruger et al., 2018).

An additional study on wildflower tourism by Kruger, M., Viljoen, A. & Saayman, M. (2013), sought to recognize visitor motivations of travel to two different South African National Parks (SANParks) to witness the natural plant event of wildflower blooming. Once again, the project’s goal was to determine a visitor segmentation that would construct a visitor profile based on a typology, to discover the factors visitors considered important in park attributes and a memorable experience.

Kruger et al. (2013) determined that visitors’ motivations were “experience and appreciation, escape, and amenities” (p. 92) and the visitor segments that were

defined were “Appreciators, Observers, and Admirers” (p. 92). Admirers scored all motivational factors highest, Observers lowest, and Appreciators viewed experience and appreciation the most important attributes. Factors important to a memorable experience “were identified, namely, in order of importance: uniqueness, splendor and diversity, and identification” (Kruger et al., 2013, p.94-95). Tangible park attributes, which were facility-based preferences, scored higher over intangible park features, such as accessibility and directions to and from the park.

Although one study focuses on a water event and the other a plant event, there are similarities characteristic to both natural events. These include experiencing the natural event for its own remarkable sake, the importance of proximity to the species being viewed, the photographic opportunities it provides, and the education presented either by way of primary or secondary interpretation, which includes the identification of species.

While the study objectives of both investigations were successfully accomplished, queries on visitor behaviour appeared in the wildflower study only, which addressed the frequency of tourist visitation to the SANParks, as opposed to personal conservational or pro-environmental behaviours held by visitors. Furthermore, no discussion of whether viewing the salmon or wildflowers transitioned visitors into more responsible tourists, was evidenced.

In contrast, Ballantyne, Packer & Falk (2010) sought to discover the defining element of a visitor’s transition into the long-term conscientious tourist. The researchers examined the impacts wildlife tourism experiences had on visitors at four separate wildlife viewing experiences in Queensland, Australia. These included two captive events and two natural events, which were: an aquarium, marine theme park, a turtle nesting and hatching encounter, and a whale watching tour. Visitors

who participated in the study were to commit to complete three questionnaires: one pre-visit, a second post-visit, and a third, web survey, was completed four months after the encounters. Three variables that were measured included “visitors’ entering attributes (environmental orientations and motivations for the visit), salient aspects of the experience, and short and long-term impacts on visitors’ environmental learning and behavioural outcomes” (Ballantyne, et al., 2010, p. 1244).

Approximately 1278 participants completed the pre-visit questionnaire, however, only 173 visitors completed all three questionnaires. Respondent numbers notwithstanding, some of the salient aspects of the viewing experience included the exhilaration of seeing the animals, having good views of them, and an experience that was enjoyable, engaging, and left visitors “feeling a sense of wonder or awe” (Ballantyne et al., 2010, p. 1247). An emotional connection with the animals being viewed was principal, feelings (positive or negative) toward environmental concerns, and the need to reflect on and discuss the experience with their travel companions was also important to visitors (Ballantyne et al., 2010).

Ballantyne et al. (2010) discovered that “a reflective experience made a significant contribution to short-term learning, which in turn was a significant but weak predictor of long-term impact” (p. 1250) and learning outcomes were resultant of the combination between cognitive and emotional factors.

The researchers did not investigate barriers to participation and the qualifiers visitors deemed important in achieving a satisfying viewing experience, were not addressed. Yet, some of those aspects, in general terms, filtered through visitor responses, when asked about their motivational reasons for partaking in the viewing experience. Nonetheless, visitor transition into the long-term responsible tourist



remained illusive, as Ballantyne et al. (2010) observed “new knowledge and understandings appeared to outlast actual changes in attitudes and behaviour” (p. 1250).

Accordingly, Hughes (2013) argued that visitor intentions recorded immediately post-experience were a poor way to predict long-term behaviour changes in visitors. Hughes (2013) utilized the natural sea turtle nesting event at Mon Repos Conservation Park in Queensland Australia, and performed a study utilizing nearly the same methodology as Ballantyne, Packer & Falk (2010). One hundred Australian families were given three questionnaires which included one for the pre-visit, measuring visitor’s conservation knowledge regarding turtles and their threats, their attitudes, and 13 conservation behaviours they may participate in, such as recycling, volunteering, and donating money to causes (Hughes, 2013). A second questionnaire was administered immediately post-visit to measure the visitor’s experience, and the third questionnaire was given three (instead of four) months after the viewing experience, to measure long-term behaviour change (Hughes, 2013).

Hughes (2013) discovered an increase in visitor’s behavioral intentions “if they felt an emotional connection with the turtles viewed” (p. 50) and visitors stated they would increase their role in the 13 conservation behaviours surveyed. However, three months after the viewing experience, most visitors did not change their behaviours (Hughes, 2013). Hughes (2013) discusses Community-Based Social Marketing (CBSM) theory, which seeks to isolate barriers that prevent people from engaging in conservation activities. It was Hughes’ (2013) paper that inspired this author to survey visitors regarding their barriers toward conservation participation. This study did not address specific traits of visitor satisfaction.

Another natural event case study, involves three separate elephant seal breeding sites. Two rookeries located in California and another in Argentina. The sites were highly accessible to the public and drew masses of tourists, at all locations. Le Boeuf and Campagna (2013) studied the pinnipeds for 67 years and constructed best practices to protect the elephant seals from the crowds.

The researchers believed that the protection of the pinnipeds must occur first, before visitors can have a satisfactory experience, as “unrestricted free access reduces the experience for all and ultimately threatens the attraction itself and the entire program” (Le Boeuf & Campagna, 2013, p. 140). Le Boeuf and Campagna (2013) affirmed that visitor behaviours should not be negative as to impact the animal population or destroy the natural viewing event for other visitors.

There is a strong parallel here with the basking sea turtles on Maui, as visitor behaviour has been monitored at the basking site by Hawai'i Wildlife Fund since 2008. Le Boeuf and Campagna (2013) devised their strategy to protect the elephant seals by the observations they made witnessing the viewing event, not by surveying visitors about their viewing experience (Le Boeuf & Campagna, 2013). Therefore, visitor satisfaction, learning, attitudes, and behaviours were not addressed, nor if visitors transition into more responsible tourists post-viewing experience.

In reviewing the literature on natural events and the visitor experience, the case studies exhibit many analogous qualities, such as experiencing the spectacle for its own sake, protection and conservation, emotional connection, proximity to the species, and the pursuit to discover the causes of short and long-term behaviour change. While a great deal of literature on wildlife viewing exists, there is no study that addresses the impacts of the terrestrial basking event of the Hawaiian green sea

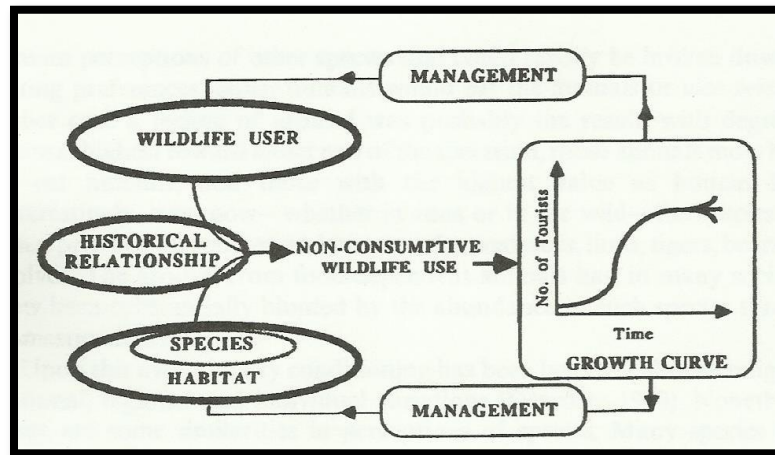
turtles on visitors, and their experience, at Ho'okipa Beach Park. In the next section, I will discuss two models often utilized in wildlife tourism management.

### 2.3 Wildlife Tourism Management Frameworks

Two conceptual models proposed by Duffus and Dearden (1990) and Mark Orams (1995) assist in addressing wildlife oriented recreation and management of marine tourism.

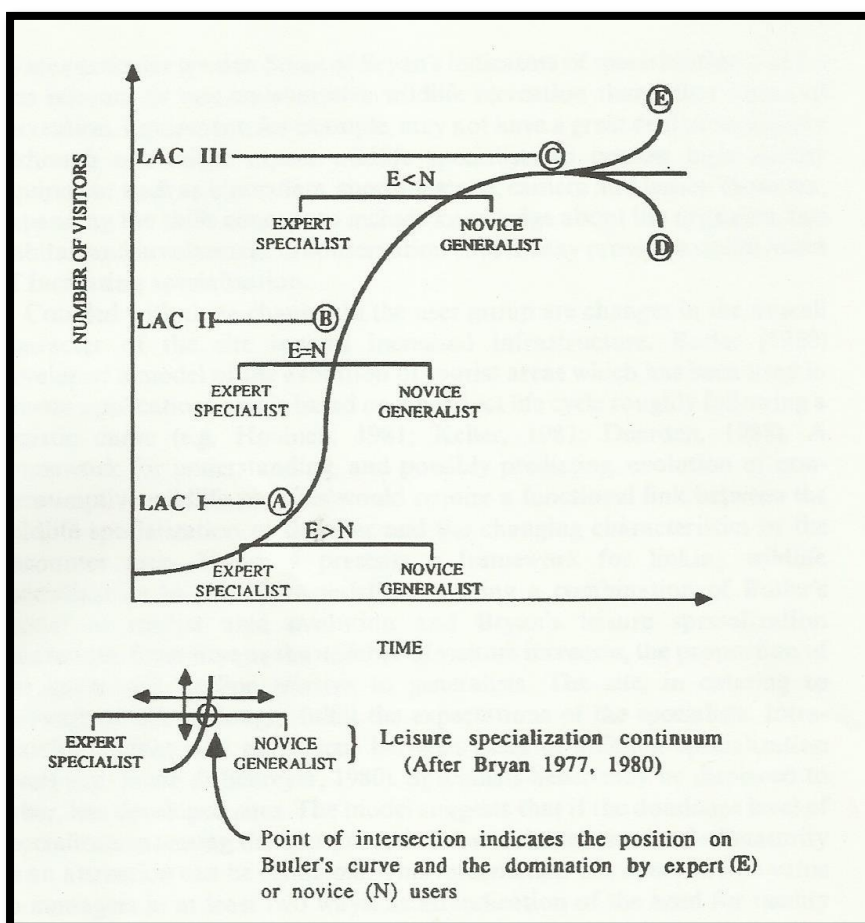
#### *2.3.1 Non-Consumptive Wildlife-Oriented Recreation: A Conceptual Framework*

In the first model, wildlife watching has been characterized as a non-consumptive wildlife-oriented recreation (NCWOR), which is defined as “a human recreational engagement with wildlife wherein the focal organism is not purposely removed or permanently affected by the engagement” (Duffus & Dearden, 1990, p. 215). The researchers created this framework hoping it would assist in managing the growth of non-consumptive wildlife activities between the species, people, and the historical relationship between the two (Duffus & Dearden, 1990).



**Figure 2.1: Duffus & Dearden (1990) - The core components of non-consumptive wildlife.**

Duffus & Dearden (1990) employ a growth curve modelled after Butler's tourist area life cycle curve (Butler, 1980). The researchers state that a wildlife viewing site may grow in notoriety causing the visitor type to change over time, whereby they demand their own differing levels of satisfaction and expectation from the experience (Duffus & Dearden, 1990). They argue that in the beginning, a tourist typology called the "wildlife specialists" (p. 222) will be the ones to attend the viewing site, requiring very little in the way of infrastructure or interpretation, and their presence does not impact the species, society, or natural viewing site (Duffus & Dearden, 1990). As knowledge of the viewing site grows, the "wildlife generalist" (p. 222) begins to appear demanding "more facility development, more mediation and



**Figure 2.2: Wildlife-oriented recreation.**  
The relationship of user specialization and site.

increased pressure on both the social system and the ecosystem of the host area” (Duffus & Dearden, 1990, p. 222). As the growth of the viewing site continues, the wildlife generalist must become more accommodated, eventually pushing out the wildlife specialists, dominating and stressing the host society and ecosystem, increasing the need for managerial intervention (Duffus & Dearden, 1990).

At each stage of growth, “change is initiated when the area’s existing carrying capacity is exceeded” (Duffus & Dearden, 1990, p. 224). The authors refer to this as the “limits of acceptable change (LAC)” (Duffus & Dearden, 1990, p. 225), for which there are three levels and “violating LAC III may well be serious enough to permanently alter the ecological capacity of the site to provide the recreational experience” (Duffus & Dearden, 1990, p. 225). While Duffus & Dearden (1990) offer this framework, the researchers recommend determining the expectations, motivations and satisfactions of wildlife viewers to further aid in the management of the NCWOR and the focal species.

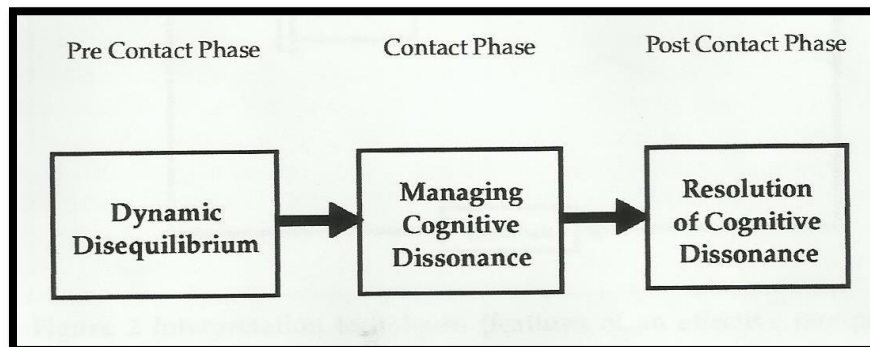
Higham (1998) tested the Duffus & Dearden (1990) framework to target visitor impacts of NCWOR on the Northern Royal Albatross Colony, in New Zealand. Guides have been taking visitors to view the colony since 1972, operated by the Otago Peninsula Trust (OPT) who produced annual reports detailing tourism development to the colony (Higham, 1998). For 16 years, small tours of visitors were escorted to view the Albatross three days a week. This changed in the 1980s, when daily tours, visitor numbers, and the hours of operation expanded (Higham, 1998). Infrastructure was built which included an observatory, followed by a reception centre and the provision of 21 tours per day, which left every half hour during an 11.5-hour work day, every single day of the year, excluding Christmas Day (Higham, 1998). The growth curve at Taiaroa Head mimicked the curve utilized by Duffus & Dearden (1990).

While the wildlife generalists demanded more introductory information about the colony, they also required “policing of behaviour” (p. 528), exhibited unacceptable noise levels, and utilized camera flashes on the birds (Higham, 1998). Higham (1998) reported the carrying capacity of the Albatross viewing site progressed from LAC I, which “allows the maximum number of viewers with minimum facilities and negligible impact on the species or habitat” (p. 528) to LAC II, which may show impacts on the Albatross. Such was the case, as some birds began nesting in sub-optimal locations, away from the observatory while others seemed to tolerate the visitors (Higham, 1998). However, Higham (1998) examined nesting records over a 50-year period discovering the age albatross chicks would leave their nests was considerably different between those who were in nests close to viewers, compared to those that were out of sight. Further, he pointed out that the tolerance of tourists does not mean impacts still do not take place on the species and while he agreed the Duffus & Dearden (1990) framework held up, the tourist impacts on wildlife would be difficult to recognize had he not had “time series research” (p. 529) to review and recommended ongoing monitoring of the viewing site (Higham, 1998).

### *2.3.2 Orams’ Framework*

Orams offers a conceptual framework for the management of marine tourism (1995). This is a framework for testing the efficacy of various tourism management strategies to move visitors toward stewardship of the environment (Orams, 1999). One of the management strategies utilized, is interpretation: “an educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information” (Tilden, 1957, p. 8). Orams’ model was adapted

from the work of Forestell and Kaufman (1990) who tested whale watching interpretation programs in Hawai'i to assess their impact on visitor appreciation.



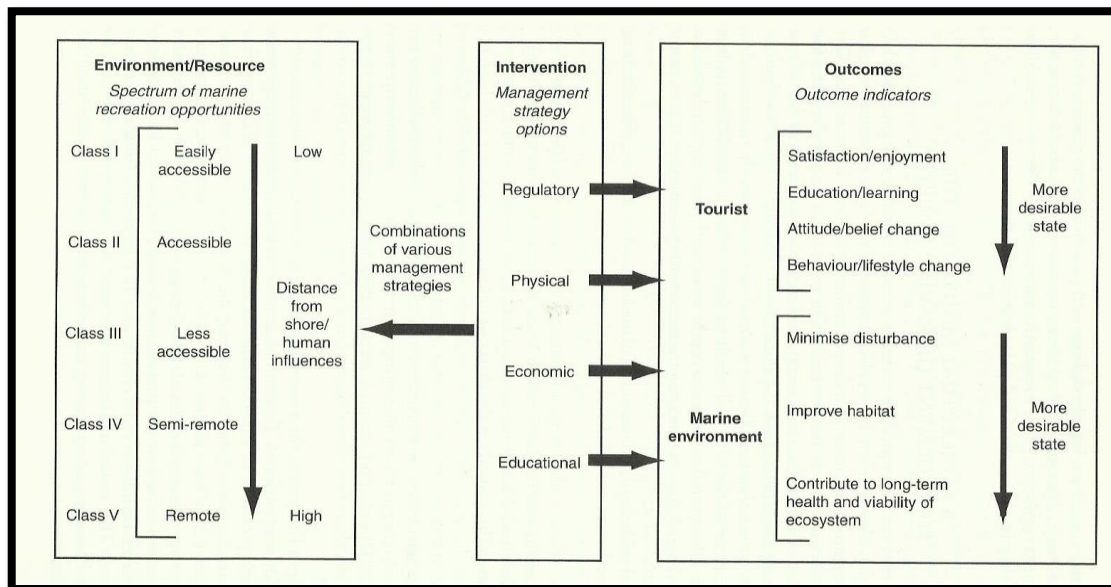
**Figure 2.3: Forestell & Kaufman's (1990) interpretation model.**

Forestell & Kaufman (1990) used Festinger's (1957) cognitive dissonance theory to develop a three-stage experiential interpretation program. The researchers believed questions should be created in the visitors' minds, prior to the tourism encounter, in a Pre Contact Phase that creates "a perceived need for information" (Orams, 1996, p. 85). The discrepancy between the visitors needing and having the information causes dissonance (discord), motivating visitors to learn. The interpreters manage the cognitive dissonance in the visitors, by providing them with the needed information "relevant to what the tourist is observing and experiencing" (p. 85), during their experience (Orams, 1996). The Post Contact Phase incorporates activities to help move the participants into a changed behaviour, after they have assimilated the new information (Orams, 1996).

However, since a variety of wildlife experiences cannot host a pre and post contact phase, Orams utilized Forestell & Kaufman's (1990) model as a structure to build upon. He examined cognitive processes and determined there was relevance of the affective domain in "nature-based tourism because of the emotional responses that such interaction with nature engenders" (Orams, 1996, p. 89). Therefore, if an

interpretation program contained emotional involvement for the visitor, it may be likely to cause a behaviour change if visitors were persuaded by factors of why they should change (Orams, 1996). Orams (1996) believed this could be achieved if interpretation programs provided the means and the opportunity for visitors to act and constructed a six-step approach in designing an effective interpretation program (Orams, 1996).

Nevertheless, interpretation is one management strategy for which there are others used to manage marine encounters. Orams (1995) developed a conceptual model for the management of marine tourism that divided managerial approaches into four categories: regulatory, physical, economic, and educational. These strategies could be utilized in various combinations to manage marine tourism recreations, classified from easily accessible to those that are more remote.



**Figure 2.4: Orams (1999) Conceptual model for the management of marine tourism.**

To assess the success of the strategies employed to manage a marine tourism recreation, Orams (1995) devised outcome indicators. Outcome indicators are four



steps used to measure a visitor's satisfaction/enjoyment, education/learning, attitude/belief change, and behaviour/lifestyle change (Orams, 1995). The objective is to help facilitate the visitor from having an enjoyable experience wishing to impart a minimal disturbance on an environment, to one where they make a behaviour change which positively contributes to the environment (Orams, 1995). Orams (1999) endorses designing a research instrument to measure outcome indicators and believes "educational strategies in combination with other approaches show considerable potential for creating the sustainable 'ecotourism' that so many hope is attainable" (p. 91).

In 2008, Zeppel applied Orams' framework to analyze the empirical studies of 18 marine wildlife experiences, in Australia. Within all experiences, visitors received guided tours (Zeppel, 2008). She found positive tourist behaviour changes occurred when emotional empathy and learning were combined (Zeppel, 2008). When the guide placed the focus of the encounter on education, some visitors changed their attitudes toward conservation, becoming more aware of species threats (Zeppel, 2008). Human impacts on the species also influenced visitor attitudes, beliefs, and conservation outcomes (Zeppel, 2008). Visitors cleaned beaches, donated money to wildlife causes and recycled, four months after encounters with sea turtles and dolphins (Zeppel, 2008). Zeppel (2008) concurred that her review of the 18 experiences "supports Orams' (1999) framework, for managing marine tourism experiences as well as the experiential education sequence model in marine ecotourism programs (Forestell, 1990)" (p. 11). She advocated for longitudinal studies post experience and that future research be executed on the connections between emotions, learning, the wildlife experience, and conservational actions with Orams' (1999) model (Zeppel, 2013).

Out of the two wildlife tourism management frameworks, this author will adapt Orams' (1999) model to study the impacts of terrestrial basking event of Hawaiian green sea turtles on visitors, at Ho'okipa, Maui.

#### **2.4 Ho'okipa Beach Park, Maui and Hawaiian Green Sea Turtle Research**

The literature investigated on Hawaiian green sea turtles includes studies that have been completed at Ho'okipa Beach Park, have addressed basking behaviours, and are within the Hawaiian archipelago.

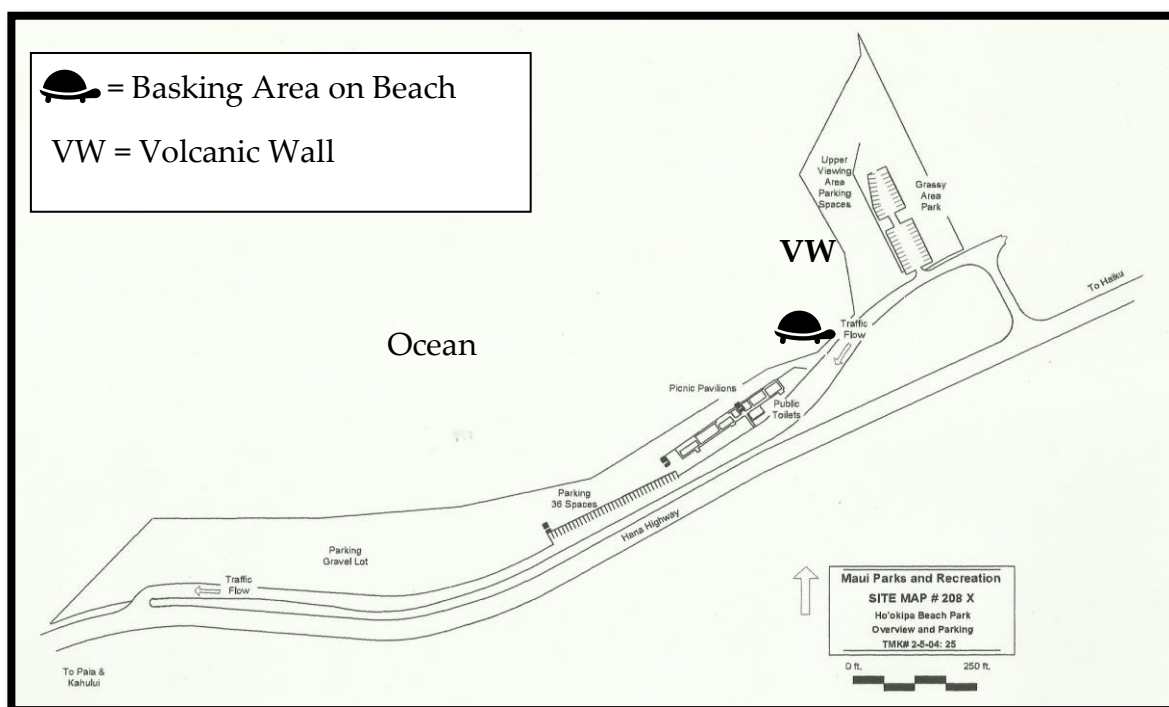
In Hawai'i, the green sea turtle (*Chelonia mydas*) population has increased 53% over the last 25 years due to the protection of them in 1978 from human harvesting (NOAA Fisheries: Pacific Islands Regional Office, N.D.). However, after 40 years of protection, this population is still regarded as 'threatened' under the Endangered Species Act (ESA) and is recognized as a distinct population segment (DPS) (NOAA Fisheries: Pacific Islands Regional Office, N.D.). This is defined as "a vertebrate population or group of populations that is discrete from other population of the species and significant in relation to the entire species" (NOAA Fisheries, 2014).

In 2008, Hawai'i Wildlife Fund (HWF) began a photo ID catalogue of the basking green sea turtles at Ho'okipa Beach Park and has since recorded over 120 individual turtles that bask on the beach (Hawai'i Wildlife Fund, personal communication, April 2016). In 2011, Maui county lifeguards asked the non-profit to help them protect the turtles from harassment, as they could not safely monitor both people and sea turtles (H. Bernard, personal communication, November 26, 2016).

Green sea turtles will bask on other beaches of Maui and the Hawaiian archipelago. However, what is unique about this population is that no other area

receives the basking turtles with such consistency and number, with HWF reporting a record of more than 100 turtles basking at one time, at Ho'okipa Beach (Hawai'i Wildlife Fund, personal communication, April 2016). Typical numbers are reflective of 20 or more basking sea turtles in an evening, but each night is different (Hawai'i Wildlife Fund, personal communication, April 2016).

It is assumed that the green sea turtles arrive at Ho'okipa to bask, because it is an area that is very accessible to them (Hawai'i Wildlife Fund, personal communication, April 2016). The basking beach maintains a gentle incline from the ocean's entry, surrounded by a tall volcanic wall which can serve as protection from some of the harsher environmental elements. (Hawai'i Wildlife Fund, personal communication, April 2016). The basking period begins mid-day, mainly, and continues toward sunset where the turtles will rest on the beach overnight. Basking turtles most often remain motionless, except when taking a breath or to flip sand on



**Figure 2.5: Map of Ho'okipa Beach Park, Maui.**

their hind flippers or carapace, to cool themselves. At night the beach becomes very dark and the gates to Ho'okipa Beach Park are locked allowing the turtle population to rest undisturbed (Hawai'i Wildlife Fund, personal communication, April 2016).

Basking helps the turtles with thermoregulation and to avoid tiger sharks (Hawai'i Wildlife Fund, personal communication, April 2016). It is proposed that the basking behaviour aids in digestion (Van Houtan, Halley & Marks, 2015), vitamin D synthesis, egg maturation, and helps break down fungi and algae (Maxwell, Jeglinski, Trillmich, Costa & Raimondi, 2014).

Both Hawthorne (in press) and Van Houtan et al. (2015) examined the basking behaviours of Hawaiian green sea turtles against sea surface temperatures (SST), in Hawai'i. Hawthorne (in press) looked at the correlation between the number of basking turtles to the sea surface temperatures (SST) and surf heights, at Ho'okipa Beach.



**Figure 2.6: Basking Hawaiian Green Sea Turtles at Ho'okipa**

Van Houtan et al. (2015) completed a sea surface temperature (SST)/basking study, utilizing census data from turtles basking at Laniakea Beach Park, on O'ahu.

Hawthorne (in press) discovered surf heights low in stature facilitated the largest numbers of basking turtles on the beach, whereas turtles were frequently disturbed or displaced when high surf encroached upon the beach basking area. At Ho'okipa, peak numbers of basking green sea turtles occurred during the transitional months between summer (August, September, October) and fall (November, December, January) (Hawthorne, in press). The reverse was stated by Van Houtan et al. (2015), who determined higher numbers of basking turtles during the winter months on O'ahu, when the sea surface temperature drops below 23 degrees Celcius. Both studies did not see high numbers of sea turtles basking in spring or summer months. Van Houtan et al. (2015) suggest the basking behaviour of Hawaiian green sea turtles may cease in Hawai'i by 2039 due to the warming of oceanic conditions, allowing the green turtles to thermoregulate in-water. Hawthorne (in press) argues the sea turtles may not need to thermoregulate via basking during the colder months but exhibit the behaviour when the sea surface temperature initially drops, to regulate their body temperatures as they transition into the next climatic season. Hawthorne (in press) maintains that rising sea levels will cause the basking area of Ho'okipa Beach to be considerably covered by water by 2050, significantly reducing the basking turtle population and possibly completely submerged by 2100, eliminating the green sea turtles from the area altogether.

Further research on Hawaiian green sea turtles may be viewed by Balazs, a career researcher with the National Oceanic and Atmospheric Administration (NOAA), who has produced over 180 publications on turtles. These include studies on the basking behaviours of sea turtles and their thermal ecology (1982), biological data (1979), migrations (1976), and issues of disease (2005), to name a very small few of his vast accomplishments.

## 2.5 Summary

In summary, the above studies address natural events, wildlife tourism management frameworks, Ho'okipa Beach Park and green sea turtle research in Hawai'i. Although numerous studies have evaluated the basking behaviours of the Hawaiian green sea turtles, none have adopted/tested Orams (1999) framework. An additional gap exists on the impacts the basking Hawaiian green sea turtles have on visitors and whether viewing this event positively impacts learning, attitudes, and behaviors of environmental responsibility. The result of this research will provide Hawai'i Wildlife Fund (HWF) and Maui County with valuable information on the visitor, their experience, and marine tourism management options to help protect the basking Hawaiian green sea turtles, at Ho'okipa Beach Park, Maui.



Photo: C. Black

**Figure 2.7: Basking green sea turtle.**

## CHAPTER 3

### METHODS

In 1995, Orams developed a marine tourism evaluation tool to assess management strategies and their impacts on visitors, by measuring their levels of satisfaction, learning, attitudes, and behaviors. Management of a marine tourism activity that is sustainable, successfully shifts the marine tourist from an enjoyable experience, towards one which changes their behaviour or lifestyle. Consequently, this change in the visitor promotes a positive manifestation in the environment, by minimizing disturbances, improving habitats, and contributing to the longevity of the environment's health and well-being (Orams, M., 1999). As noted, this framework has yet to be explored in the context of the basking sea turtles, at Ho'okipa Beach Park, Maui.

#### **3.1 Survey Design**

Due to my previous volunteer experiences with Hawai'i Wildlife Fund, I adopted an interpretive epistemology, which seeks to "grasp the subjective meanings of people's actions" (Bryman, A., Teevan, J., & Bell, E., 2009, p. 8). Interpretive epistemology embraces a research worldview where individuals interpret the reality of their daily lives and it is these thoughts that motivate their behaviour (Bryman, A., Teevan, J., & Bell, E., 2009). My earlier work with Hawai'i Wildlife Fund and my concerns for conserving the threatened Hawaiian green sea turtle, have led me to want to explore how and if interpretation of the basking green sea turtles can influence the behaviour of tourists, making them more responsible.

The ontological approach utilized for this study, was constructivism. Constructivism explains that social reality is "not necessarily pre-existing and fixed

but is instead created through our actions” (Bryman, A., Teevan, J., & Bell, E., 2009, p. 10). Since meaning is defined by what individuals attribute to it, this approach is valuable in determining the significance behind the attributes of visitor satisfaction, learning, attitudes, and behaviours, at Ho’okipa, Maui, to establish if the action of transitioning into a better tourist occurs.

Methodologically, a case study approach using mixed methods was employed. Case studies are particularly useful for understanding people, events, experiences and organizations in their social and historical context (Veal, 2006). A random intercept survey gathered quantitative and qualitative data, adapting outcome indicators from Orams’ marine tourism model (1999). Questions were linked to visitor satisfaction, learning, attitudes, and behavior changes. Socio-demographic information was also profiled.

Both quantitative and qualitative responses were analyzed using SPSS software. A content analysis was performed on all qualitative explorations to identify emergent themes, from which data could be entered into SPSS and analyzed with the quantitative investigations. A frequency analysis was applied to summarize the results of all qualitative and quantitative questions. One question that asks the participant to name three emotions, was analyzed using a word cloud generator called Tag Crowd (N.D.).

The result of this research will assist both Hawai’i Wildlife Fund (HWF) and Maui County in providing valuable information on the visitor and their experience. This will aid in devising marine tourism management options to help protect the basking Hawaiian green sea turtles, at Ho’okipa Beach Park, Maui. Providing essential base line information, this research can be repeated in future, delivering comparisons and possible trends.



### **3.2 Sampling Strategy**

A convenience sample of 400 surveys was to be collected using a clipboard and paper survey. The survey sample size of 400 was determined by utilizing the Research Advisors Required Sample Size Table (Research Advisors, 2006). In 2016, 76,094 people visited Ho'okipa Beach Park (Hawthorne, J., personal communication, October 5, 2017). The visitor total is calculated from 2:30 pm when a Hawai'i Wildlife Fund (HWF) volunteer is on shift, until park closing. Park closing was at 7pm during this study but may vary slightly other times of the year, given periods of shorter days of sunlight. In the Northern Hemisphere, June 20, 2017 was the longest day of the year (summer solstice), giving Maui 13:25:51 hours of daylight (Time and Date AS, 1995-2018). December 21, 2017 was the shortest day of the year (winter solstice), offering Maui 10:50:15 hours of daylight (Time and Date AS, 1995-2018). The visitor total includes the number of people on the beach viewing the basking sea turtles but does not differentiate between residents or tourists.

The Sample Size Table shows that one who desires to generate a 95% confidence level with a 5% margin of error for a population size of 75,000, would need a sample size of 381 individuals. For a population as large as 250,000 to 300,000,000, one would need a sample size of 384 individuals (Research Advisors, 2006). Therefore, the investigator chose a rounded integer of 400 as the selected the sample size, for this research.

Surveyed participants were 18+ years old (of legal age in the Hawaiian State) and were visitors to Maui and the Hawaiian Islands.

### **3.3 Research Sample Limitations**

Hawai'i State residents and Hawaiians were excluded from the survey, along with minors, those under 18 years of age.

### **3.4 Research Instrument**

The survey for this project profiled questions in five areas. Four areas adapted the Outcome Indicators from Orams' (1999) marine tourism management model, which included: visitor satisfaction, visitor learning, visitor attitudes, and visitor behaviours. The fifth area, summarized socio-demographic information (Appendix A).

Questions constructed for this survey included those designed by the researcher, as well as those borrowed and adapted from the Salute to the Sockeye Visitor Survey 2014 by Kruger, Saayman & Hull (2018). It also adapts the theory of Community-Based Social Marketing (CBSM) that Hughes (2013) discusses in her literature review, devising inquiries for respondent evaluation.

Survey questions borrowed from the Salute to the Sockeye Visitor Survey 2014, incorporated gender and year born. Questions adapted from the Salute to the Sockeye Visitor Survey 2014 (Kruger, Saayman & Hull, 2018), included those on visitor attendance and frequency to the site, the number of travel companions, and the emotions felt during the basking experience.

Adapted Likert Scale questions from Sections B and C of the Salute to the Sockeye Visitor Survey 2014 (Kruger, Saayman & Hull, 2018), consisted of motivational elements visitors felt were important to their viewing experience.

The Community-Based Social Marketing (CBSM) concept deals with discovering barriers toward pro-environmental behaviours. These barriers can be real or perceived (Hughes, 2013) and can consist of either internal or external factors (McKenzie-Mohr, 2000). McKenzie-Mohr (2000) refers to pro-environmental behaviours as repetitive, in which effort is needed initially but also needs to be sustained over time.

In her conclusion, Hughes (2013) concurred that despite an individual's good intentions, they may not be engaged in pro-environmental behaviours due to "lack of knowledge, time and/or money; poor supporting infrastructure; and social, cultural and economic factors" (p. 56-57). It was this statement that prompted a survey question asking of participants, if they actively volunteered in any conservation or environmental organizations. If participants did not engage in a conservation/environmental activity, a proceeding question asked the respondent what their barrier toward participating was, asking if it was due to: not knowing how to get involved, not having time, it costs money, there being no direct experiences where they live, poor infrastructure, or poor management.

Survey questions were further developed from "variables associated with responsible pro-environmental behaviour" (Kollmuss & Agyeman, 2002, p. 243). Hines, Hunderford & Tomera (1986) executed research that was structured upon Ajzen's (1985) Theory of Planned Behaviour, from which Community-Based Social Marketing was devised. Hines et al. (1986) completed a meta-analysis of 128 pro-environmental behaviour studies and found that pro-environmental behaviours were associated with six factors: (Kollmuss & Agyeman, 2002, p. 243).

- Knowledge of issues - person is aware of the environmental issue and its causes.
- Knowledge of action strategies - person knows how they are to act to lower their impact on environment.
- Locus of control - a person's perception of their ability to cause or bring about change through their own behavioural actions.
- Attitudes - people with strong pro-environmental mindsets were more likely to engage in pro-behaviours.

- Verbal commitment - willingness toward pro-environmental behaviors came from an expressed intent to take action.
- Individual sense of responsibility - those who feel a personal sense of responsibility in their lives are more likely to engage in pro-environmental behaviours.

From these variables, some of the survey questions included Likert Scale questions such as: I believe there are actions I can take to help the turtles, it is my responsibility to participate in ethical wildlife encounters, and sustainability of viewing the turtles depends on visitor and site management. Other queries asked respondents if they would participate in sea turtle conservation with Hawai'i Wildlife Fund if they were given the opportunity to list the pro-environmental habits they currently held, what being a responsible tourist means to them, and how they would help the basking sea turtles once they returned home.

### **3.5 Data Collection**

Data collection occurred over 31 days in Maui, from July 1 to July 31, 2017, by the principal investigator, at Ho'okipa Beach Park. Issues resulting in the researcher's change of lodging and transportation shortened the study to one month instead of the two months proposed. Surveys were collected over four hours, each research day. The four-hour period was altered daily, to randomize the process. Visitors chosen for this study were due to the increased numbers of tourists flocking to Ho'okipa Beach Park, causing concern toward the basking green sea turtles and the carrying capacity of basking site. A total of 555 surveys were collected, however, 12 were removed as three surveys were missed and nine others were completed by Maui residents, making them ineligible. Consequently, the total number of surveys collected for analysis, in one month, was 543.

### **3.6 Ethics**

Ethical approval for this study, was permitted by the Thompson Rivers University Research Ethics Board (TRUREB). An online ethics application was completed and reviewed by Faculty Supervisors Dr. John S. Hull and Dr. Kellee Caton. A letter of support from Hawai'i Wildlife Fund and a copy of the written survey were attached to the application and submitted to the TRUREB for review. Revisions to the application and survey were requested by the TRUREB. Once completed, ethical approval for this research was confirmed on June 6<sup>th</sup>, 2017. (Appendix B)

In the next chapter I will address the results, of my survey.

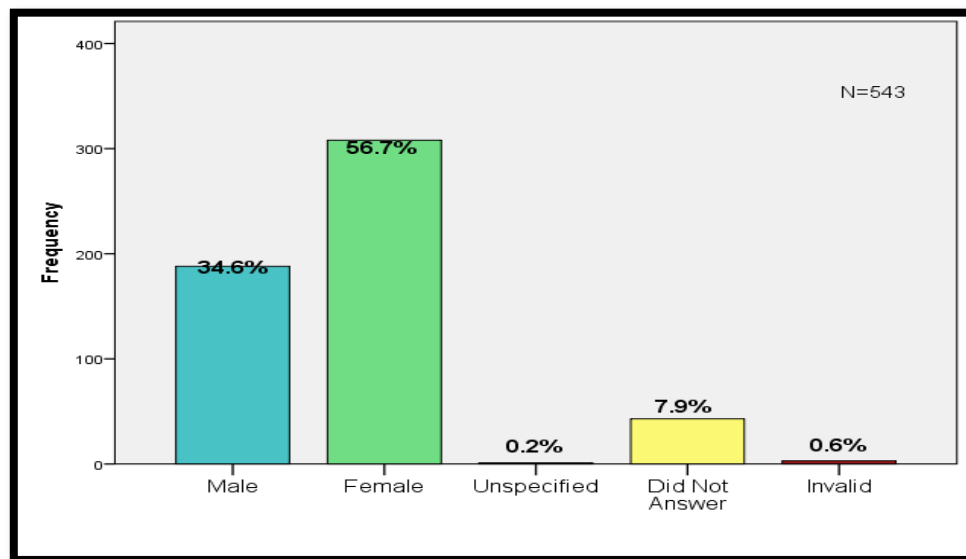
## CHAPTER 4

### RESULTS

Results from this study were arranged in the following categories and included: socio-demographic information, visitor satisfaction, visitor learning, visitor attitudes, and visitor behaviours.

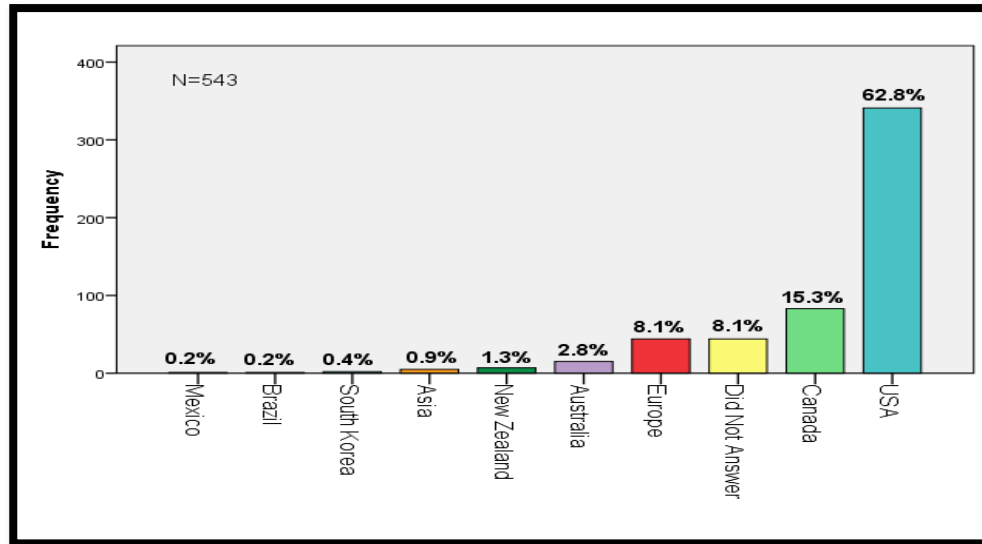
#### 4.1 Socio-Demographic Information

Of 543 respondents, 56.7% = female, 34.6% = male. 0.2% = gender unspecified, while 7.9% did not answer the gender question. An invalid response of 0.6% is shown, due to surveys completed by respondents who circled more than one gender on the survey.



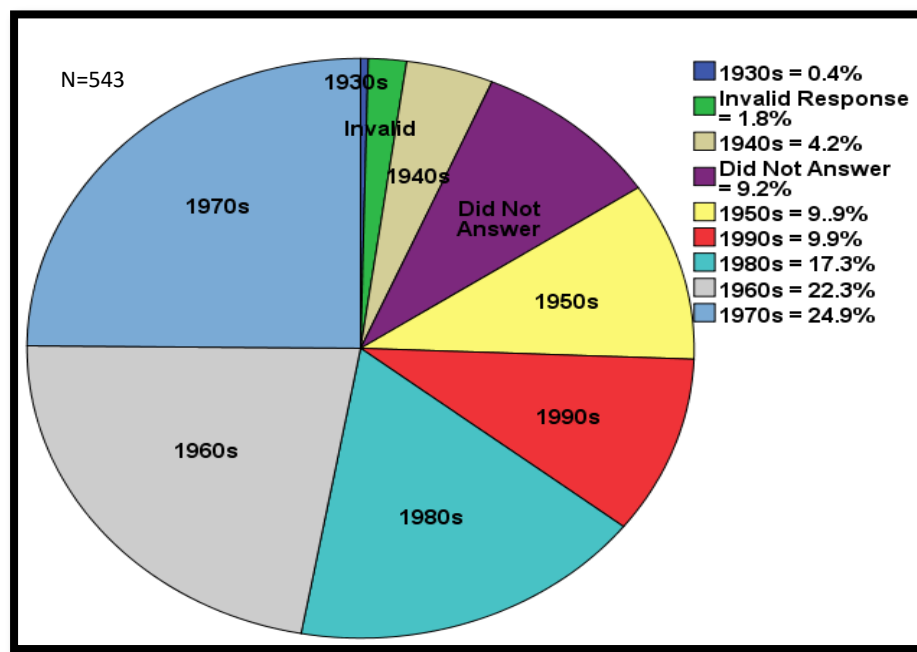
**Figure 4.1: Gender.**

Visitor participants resided in the following countries: U.S. = 62.8%, Canada = 15.3% European Union = 8.1%, Australia = 2.8%, New Zealand = 1.3%, South Korea = 0.4%, Mexico and Brazil = 0.2%. Participants that did not answer = 8.1%.



**Figure 4.2: What country do you reside in?**

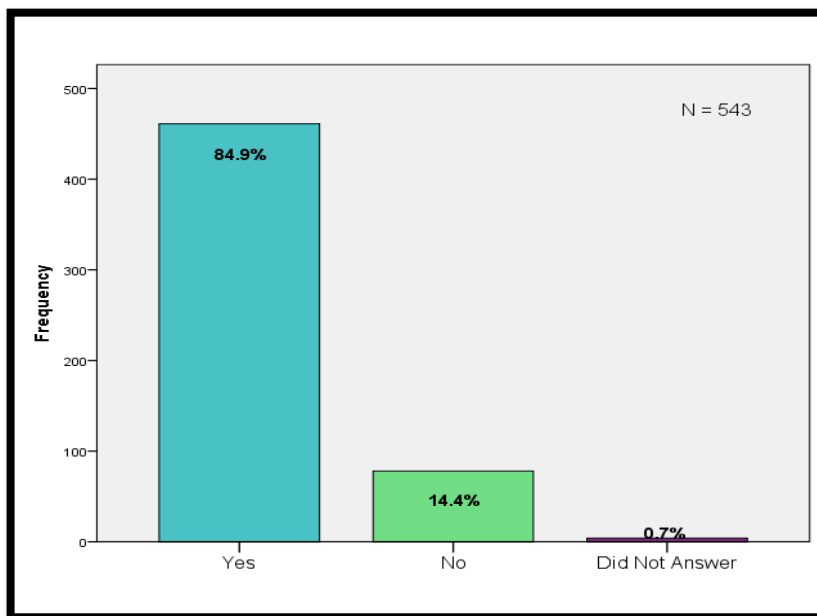
Visitors born in the 1970s and 1960s made up the largest demographic at 24.9% and 22.3%, respectively. Combined, these participants accounted for 47.2% of the survey responses. The third largest group were those born in the 1980s = 17.3%. Both visitors from the age groups of the 1950s and 1990s = 9.9%. The 1940s and 1930s represented 4.6% and 9.2% of participants did not respond.



**Figure 4.3: Year born.**

#### 4.2 Visitor Satisfaction Information

84.9% of visitors witnessed the basking green sea turtle event at Ho'okipa Beach Park for the first time, while 14.4% stated it was not their first time. 0.7% did not respond.



**Figure 4.4: First time witnessing the basking sea turtles at Ho'okipa?**

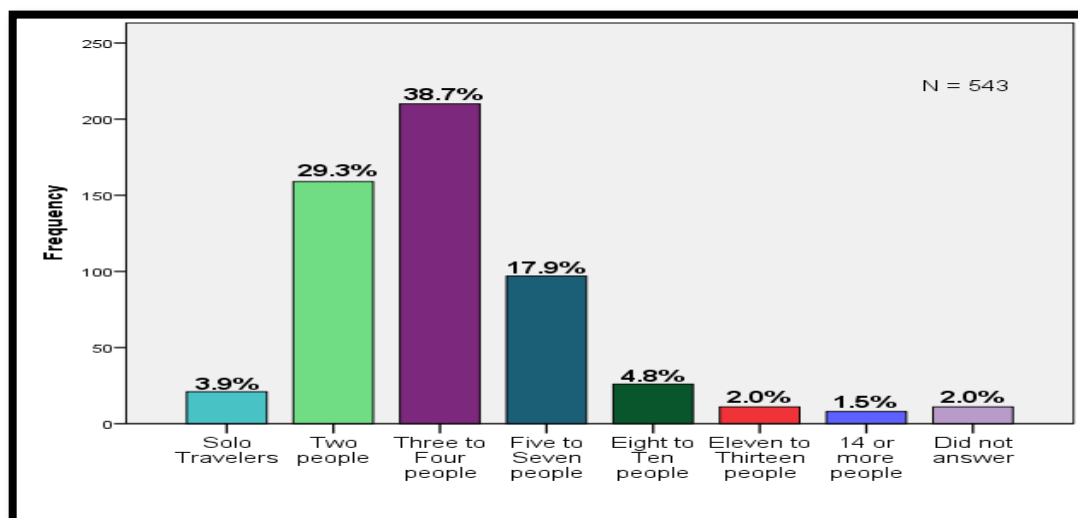
1.8% of visitors did not view (0 times) the turtles during previous trips but viewed them more than once during their current trip. 5.0% of visitors reported viewing the basking green sea turtles once on a previous trip, 1.7% viewed the turtles twice during a previous trip (or trips). 0.6% viewed the turtles three times during previous trips. Whereas, 1.6% of visitors viewed the turtles from 3 to 6 times and 1.2% viewed the turtles 10 to 50 times. 3.3% did not answer and 0.7% of respondents' answers were invalid due to the legibility of their response.



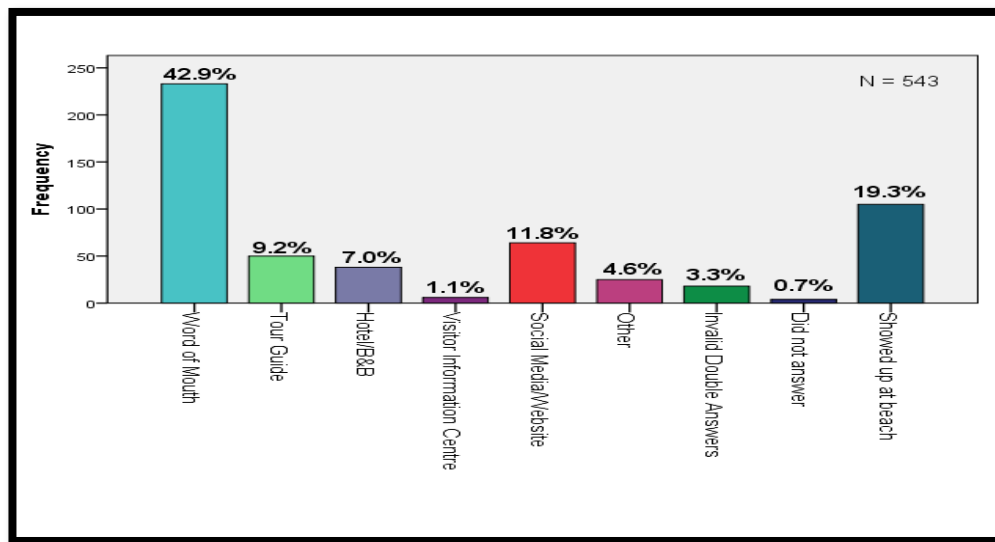
**Table 4.1: How many times did you witness the turtles in previous trips?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	10	1.8	1.8	1.8
1	27	5.0	5.0	6.8
2	9	1.7	1.7	8.5
3	3	.6	.6	9.0
4	1	.2	.2	9.2
5	2	.4	.4	9.6
6	2	.4	.4	9.9
10	3	.6	.6	10.5
11	1	.2	.2	10.7
30	1	.2	.2	10.9
50	1	.2	.2	11.0
Answered Yes to 1A so N/A	461	84.9	84.9	99.3
Did not answer	18	3.3	3.3	14.4
Invalid Answer	4	.7	.7	100.0
Total	543	100.0	100.0	

3.9% of tourists viewed the basking green sea turtles as solo travellers, 29.3% travelled in pairs, 38.7% viewed as a group of three to four individuals. 17.9% comprised a group of 5 to 7 people, while 8.3% included a combined 8 to 14+ visitors. 2.0% of participants did not respond.

**Figure 4.5: Number of people viewing the turtles including yourself.**

Given the number of tourists gathering daily to view the basking green sea turtles at Ho'okipa Beach Park, a question was asked as to how visitors found out about the turtles. 42.9% found out by word of mouth. Friends, other tourists, taxi drivers, rental car agencies, and service staff from Mama's Fish House restaurant were the most popularly listed. 19.3% of visitors showed up at Ho'okipa Beach to watch the windsurfers, participate in beach activities, or stopped at the lookout to view the waves and discovered the sea turtles basking by chance.



**Figure 4.6: How did you find out about the basking turtles?**

11.8% of visitors found out about the turtles via social media or websites. Facebook, TripAdvisor, Expedia, and Yelp were the most mentioned. 9.2% of visitors were told about the sea turtles by tours they had taken. Most noted were Temptation Tours, Dynamic Tours, and Rappel Maui. 7.0% found out via Hotels with the Aloha Surf Hostel, Wailea Beach Marriott Resort & Spa, the Sheraton Maui Resort & Spa, and the Westin Maui Resort & Spa, listed often. 4.6% of participants answered 'Other', which included a travel book titled Maui Revealed, a mobile app called the Shaka Guide that offered driving tour descriptions as visitors drove certain routes around the island, and previous trip experiences.

3.3% of the answers were found invalid, as respondents circled two answers to the question. Although void, this statistic is worth noting as participants found out about the turtles via two different information sources. 1.1% found out about the sea turtles via a Visitor Information Centre. 0.7% did not answer the question.

The following 12 questions were arranged in a Likert Scale asking visitors to rate their importance in achieving a satisfying experience while viewing the basking green sea turtles. The rating scale was as follows: Very important = 5, Important = 4, Neutral =3, Unimportant =2, Very unimportant =1

**Table 4.2: How important are the following in achieving a satisfying experience when viewing the basking sea turtles?**

	N	$\bar{x}$
The basking turtles are a memorable experience	542	4.79
The basking event is natural and authentic	540	4.77
Affection/Empathy towards the sea turtles	540	4.72
Viewing an animal, I do not normally see	542	4.62
The proximity of turtles	541	4.60
Viewing an animal important to Hawaiian Culture	542	4.53
Seeing an animal on the endangered species list	541	4.38
Easy access to the beach	542	4.33
Feeling a sense of place viewing the basking turtles	541	4.27
A photo opportunity	542	4.21
Confidence the turtles would be basking	538	3.93
Number of turtles at the basking site	542	3.88
Valid N (listwise)	524	

The top three aspects were the event being a memorable experience ( $\bar{x} = 4.79$ ), that was natural and authentic ( $\bar{x} = 4.77$ ) in which visitors expressed feelings of affection or empathy towards the turtles ( $\bar{x} = 4.72$ ).

Viewing an animal that tourists do not normally see ( $\bar{x} = 4.62$ ), the proximity of the turtles ( $\bar{x} = 4.60$ ) and viewing an animal important to Hawaiian

culture were of secondary importance. Viewing an animal placed on the Endangered Species list ( $\bar{x} = 4.38$ ), having easy access to the beach and basking site where the turtles were found ( $\bar{x} = 4.33$ ), feeling a sense of place ( $\bar{x} = 4.27$ ), and having a photographic opportunity ( $\bar{x} = 4.21$ ), was of tertiary importance to a satisfactory experience.

Visitors felt more neutral in their importance, about having confidence the sea turtles would be basking ( $\bar{x} = 3.93$ ) and less concerned about the numbers of sea turtles that may be basking ( $\bar{x} = 3.88$ ).

Participants were asked which three words best described the emotions they felt from witnessing the green sea turtles bask. 1519 responses were placed into a word cloud generator called Tag Crowd (N.D.), which grouped similar words together, computing the frequency of the words used by respondents. The top three emotions expressed were: Happy (144), Amazing (141), and Peaceful (137).

#### **4.3 Visitor Learning Information**

The questions in this category were to assess the interpretation given by Hawai'i Wildlife Fund and determine the information visitors learned while viewing the basking event. When asked if visitors received information about the basking sea turtles from a Hawai'i Wildlife Fund representative, participants could answer 'Yes' or 'No'. Respondents answering 'Yes' = 56.4%. 'No' = 37.8% and 5.3% did not answer.

**Table 4.3: Received information from HWF.**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	306	56.4	56.7	56.7
	No	205	37.8	38.0	94.6
	Did not answer	29	5.3	5.4	100.0
	Total	540	99.4	100.0	
Missing System		3	.6		
Total		543	100.0		

The question 'What are two facts you learned about the basking green sea turtles', has been dropped from this analysis. A total of 132 out of 543 survey participants did not answer the question, which accounts for 24.3% of the total number of surveys. 35 participants outside of this number answered the question partially, by providing one out of two facts.

**Table 4.4: Viewing the basking sea turtles causes me to care more about... sea turtle conservation and my environmental choices.**

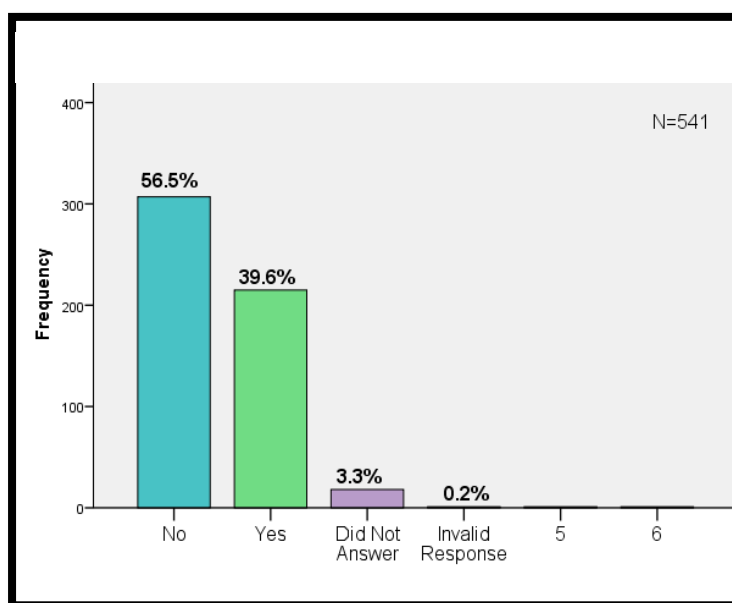
	Agree		Undecided		Disagree		Did not answer	
	Count	Row Valid N %	Count	Row Valid N %	Count	Row Valid N %	Count	Row Valid N %
	Sea turtle conservation	453	83.4%	56	10.3%	8	1.5%	26
My environmental choices	425	78.6%	77	14.2%	13	2.4%	26	4.8%

83.4% of visitors agreed the experience caused them to care more about sea turtle conservation, 10.3% were undecided, 4.8% of respondents did not

answer, and 1.5% disagreed the viewing experience would cause them to care more about sea turtle conservation.

78.3% of respondents felt they cared more about their environmental choices because of viewing the basking turtles, 14.2% were undecided, 4.8% surveyed did not answer, and 2.4% disagreed.

When asked if visitors possessed prior knowledge of responsible sea turtle viewing guidelines before viewing the basking sea turtles, 56.5% answered 'No', 39.6% answered 'Yes'. 3.3% did not answer, and 0.2% of answers were invalid due to both choices being circled.



**Figure 4.7: Prior knowledge of responsible sea turtle viewing guidelines?**

#### **4.4 Visitor Attitudes Information**

A second set of 12 questions were arranged in a Likert Scale asking visitors to indicate their responses to the following questions. The rating scale was

as follows: Strongly Agree = 5, Agree = 4, Undecided =3, Disagree =2, Strongly Disagree =1.

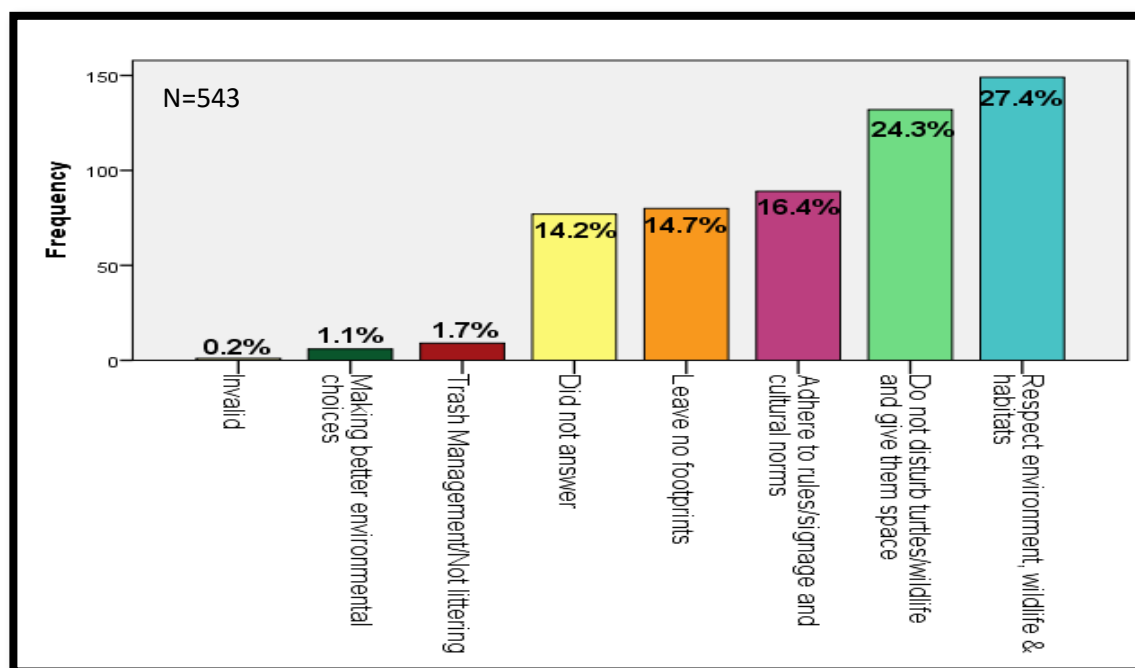
**Table 4.5: Visitor Attitudes.**

	N	$\bar{x}$
The basking sea turtles should be minimally disturbed	541	4.92
Sea turtles/wildlife are much more than tourism objects	542	4.90
Protecting the sea turtles protects their significance in Hawaiian culture	542	4.85
Sustainable viewing depends on visitor and site management	543	4.80
I benefit from viewing the basking sea turtles	543	4.72
It is my responsibility to participate in ethical wildlife encounters	541	4.63
The number of people in the water at ocean entry concerns me	543	4.44
I believe there are actions I can take to help the turtles	542	4.35
I would view from a platform to make less impacts on the sea turtles	543	4.08
I would support a park visitor fee to assist with site and visitor management	543	4.07
I would not support a park visitor fee but would donate to HWF instead	543	3.84
The number of people around the basking sea turtles concerns me	542	3.83
Valid N (listwise)	535	

Surveyed respondents agreed most strongly that the basking sea turtles should be minimally disturbed ( $\bar{x} = 4.92$ ), are much more than tourism objects ( $\bar{x} = 4.90$ ), and that protecting them protects their significance in Hawaiian culture ( $x = 4.85$ ). Of strong importance, but secondarily, participants felt that sustainable viewing depends upon visitor and site management ( $\bar{x} = 4.80$ ), that they benefit from viewing the basking sea turtles ( $\bar{x} = 4.72$ ), and that the responsibility falls on them to participate in ethical wildlife encounters ( $x = 4.63$ ). Visitors agreed they felt concerned about the number of people in the water at the ocean's entry ( $\bar{x} = 4.44$ ) and there were actions they could take that would benefit the sea turtles ( $\bar{x} = 4.35$ ). They agreed that they would be willing to view the

basking sea turtles from a platform to make less impacts on them ( $\bar{x} = 4.08$ ) and would support paying a modest visitor park fee to support visitor and basking site management ( $\bar{x} = 4.07$ ). Visitors were undecided about their feelings toward not supporting a visitor park fee but donating to Hawai'i Wildlife Fund instead ( $\bar{x} = 3.84$ ), and of being concerned by the number of people around the turtles ( $\bar{x} = 3.83$ ).

Participants were asked what being a “responsible tourist” meant to them. The two top comments included respecting the environment/wildlife and habitats (27.4%) and not disturbing the turtles/wildlife by giving them space (24.3%). Following rules/regulations, obeying signage, and adhering to cultural norms were the third most common statements (16.4%) and many participants commented one should take photographs only, leaving no footprints/impacts behind and leaving areas better than they found it (14.7%). Management of garbage/not littering (1.7%) and making better environmental choices (1.1%) were also represented. 14.2% of participants did not answer the question.



**Figure 4.8: What does being a responsible tourist mean to you?**



#### **4.5 Visitor Behaviour Information**

Would surveyed visitors participate in sea turtle conservation with Hawai'i Wildlife Fund, during their trip, if given the opportunity? 47.1% stated 'Maybe', 28.0 answered 'Yes', and 14.9% said 'No'. 9.2% of respondents = Did not answer.

**Table 4.6: Opportunity to participate in sea turtle conservation with HWF.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Total	543	100.0	100.0	
Maybe	256	47.1	47.1	75.1
Yes	152	28.0	28.0	28.0
No	81	14.9	14.9	90.1
Did not answer	50	9.2	9.2	99.3
Invalid Response/Double Answer	4	.7	.7	100.0

Visitors were asked whether they actively volunteer/participate in a conservational/environmental organization. 78.3% of respondents answered 'No', 9.0% 'Yes', and 12.3% Did not answer. 0.4% of answers were invalid due to conflicting answer selections (ex: 'No', but volunteers with an animal shelter).

**Table 4.7: Do you actively volunteer in a conservational organization?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Total	543	100.0	100.0	
No	425	78.3	78.3	87.3
Did not answer	67	12.3	12.3	99.6
Yes	49	9.0	9.0	9.0
Invalid Response	2	.4	.4	100.0

Of the 9.0%, the most commonly engaged organizations were wildlife-based, which included WWF, the Sierra Club, Greenpeace, and the SPCA. Closely followed were organizations that enhanced the community or natural environments at large. Those included garden clubs, river and natural park conservation, and environmental alliances.

If surveyed participants stated they did not actively a volunteer in a conservational/environmental activity, they were asked to select the reason(s) why they did not engage and to answer 'Yes' or 'No' to the following statements below.

31.7% of respondents reported they did not have time. 23.7% answered that there were no direct experiences where they lived. 21.% replied that they did not know how to get involved and 10.7% reported it costs money. 6.7% felt the issue was due to poor infrastructure and 6.2% stated it was due to poor management concerns.

**Table 4:8 I want to engage in a conservational activity but...**

	Responses		Percent of Cases
	N	Percent	
I have no time	246	31.7%	67.6%
There are no direct experiences where I live	184	23.7%	50.5%
I do not know how to get involved	163	21.0%	44.8%
It costs money	83	10.7%	22.8%
There is poor infrastructure	52	6.7%	14.3%
There is poor management	48	6.2%	13.2%
Total	776	100.0%	213.2%

a. Dichotomy group tabulated at value 1.

The means for all these responses were low to very low. A common occurrence from respondents was to answer the statement that best suited their situation, as opposed to filling out 'Yes' or 'No' to all statements on the survey.

The two remaining questions in the visitor behaviour section of the survey were thrown out of the analysis. They included:

- A) We are all connected. How will help the basking sea turtles once you return home? 25.2% of respondents did not answer this question (137/543).
- B) The other question asked participants to list the pro-environmental habits they currently have. 31.9% of those surveyed did not answer this question (173/543).

The above results will be examined in the discussion chapter.

## CHAPTER 5

### DISCUSSION

The objective of this research was to identify whether visitors transition into more responsible marine tourists, through their interaction with the basking Hawaiian green sea turtles at Ho'okipa Beach Park. The results aim to aid Hawai'i Wildlife Fund (HWF) with their visitor and site management strategies. This was accomplished by measuring the outcome indicators adapted from Orams' (1999) conceptual model for the management of marine tourism (See Figure 5.1). The results were evaluated against the literature reviewed and an interpretation of the findings is provided.

Orams (1999) explains that the Outcome Indicators may be thought of as a series of four steps. Management of a marine tourist experience may be measured by the satisfaction and enjoyment of the visitor (step 1). The two intermediate steps, education/learning (step 2) and attitudes/belief change (step 3), facilitate the visitor into a behaviour/lifestyle change (step 4). The visitor's transition positively impacts the marine environment, through the adoption of behaviours that minimize animal/habitat disturbances, to behaviours that contribute toward enduring environmental stewardship.

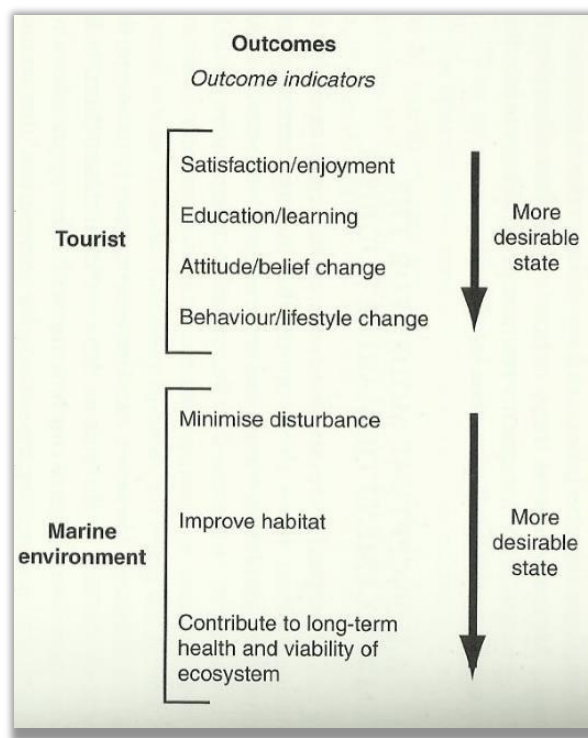


Figure 5.1: Orams (1999) Outcome Indicators.

On Ho'okipa Beach, Maui, the non-profit HWF supplies volunteers who deliver interpretation about the Hawaiian green sea turtles at the basking site. The area the turtles normally bask in contains signage and a roped barrier to deter people from entering the basking space. HWF volunteers closely monitor visitors and their behaviours daily, between 2:30-3:30 pm and stay until park closing.

### **5.1 Socio-demographic Information**

In July of 2017, 543 visitors completed the survey for this study and 56.7% were female participants. Although respondents of all genders were sought for this survey, the higher percentage of females was due to the male travel companions who often forfeited the survey to their fellow female travellers to complete.

Approximately 47% of respondents were between the ages of 40 and 50 years old and represented the principal countries the Hawai'i Tourism Authority actively markets towards, which includes: USA, Canada, the European Union, Oceania, Asia, and Japan (Hawai'i Tourism Authority, 2018).

### **5.2 Visitor Satisfaction**

Considering Orams (1999) outcome indicators, the first step of visitor transition toward stewardship to be measured was visitor satisfaction. An exploratory principal component factor analysis, based on Eigenvalues greater than 1, was completed on 12 questions arranged in a five-point Likert Scale in SPSS (v.24). Participants were to indicate how important each question was in achieving a satisfying experience when viewing the basking green sea turtles at Ho'okipa. The weighting measures assigned were: very important = 5, important = 4, neutral = 3, unimportant = 2 and very unimportant = 1. The purpose of this test was to discover if there were any themes or patterns in the relationships between the 12 variables and reduce them into factors that explained the relationships between the variables.

The Factor Analysis was completed with a Varimax rotation with Kaiser Normalization. A loading value of .5 or higher was the determining aspect of variables belonging to a factor. Loading values below .5 were suppressed in the analysis.

The factor analysis was run four times. The primary analysis showed question #15, "A photographic opportunity", as having a loading value below .5. This variable was removed, and the analysis was run a second time, whereby it presented question #7, "Confidence the sea turtles would be basking", that was cross loaded into factors 1 and 3. Consequently, this variable was removed, and the analysis was executed a third time. In this case, question #8, "Viewing an animal I do not normally see", exhibited a loading value less than .5 and was removed. The fourth and final factor analysis presented 9 variables cleanly loaded, with values greater than .5, reduced into two factor components. Factor One contained 6 variables and Factor Two consisted of 3 variables. After rotation, Factor One had an Eigenvalue of 3.037 and explained 33.470% of the variance. Factor Two had an Eigenvalue of 1.941 and explained an additional 21.562% of the variance. Combined, these factors explained 55.302% of the variance.

To measure the reliability of my variables within the two factors, a Cronbach's Alpha test was performed on each. Factor One had a Cronbach's Alpha of .795 (good reliability) and Factor Two, a Cronbach's Alpha of .676 (fair reliability).

Two tests, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity, were utilized to determine the suitability of my data for factor analysis (IBM Knowledge Center, N.D.), prior to running the assay. The first test, the KMO assessment, looked for the amount of variance in the variables/questions that might be produced by other underlying factors and used a

statistical value closest to 1, to indicate whether the sample size may be used for a factor analysis (IBM Knowledge Center, N.D.). With a KMO value of 0.808, the test determined my sample size was large enough to execute a factor analysis.

**Table 5.1: KMO and Bartlett's Test of Sphericity  
Visitor Satisfaction Likert Scale**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.808
Bartlett's Test of Sphericity	Approx. Chi-Square	1365.424
	Df	36
	Sig.	.000

The second test, Bartlett's Test of Sphericity, confirmed that my variables were related, which further supported the use of factor analysis (IBM Knowledge Center, N.D.). The correlation was significant at the  $p < 0.001$  level (2-tailed).

Instead of calling my factors, Factor One and Factor Two, I examined the value of the variables in the components that loaded high. Variables were then scrutinized by what they were measuring, followed by what all the variables within a component had most in common. Upon conclusion of this process, the component factors were re-named as: Viewing and Accessibility.

**Table 5.2: Two Factors Important in Achieving a Satisfying Experience when Viewing the Basking Hawaiian Green Sea Turtles.**

	Viewing (Factor 1)	Accessibility (Factor 2)
Q.5 Easy access to the beach/basking site.		.828
Q.4 The proximity of the turtles.		.816
Q.8 Viewing an animal important to Hawaiian culture.	.742	
Q.10 The basking turtles are a memorable experience.	.733	
Q.13. The basking event is natural and authentic.	.728	
Q.11 Feeling a sense of place viewing the basking turtles.	.707	
Q.9 Seeing an animal on the Endangered Species List.	.684	
Q.14 Affection/Empathy towards the sea turtles.	.663	
Q.6 The number of the turtles at the basking site.		.684
Eigenvalues	3.037	1.941
% of Variance Explained	33.740%	21.562%
Coefficient Alpha	.795	.676
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

The variables within the factors have been arranged in descending order, to demonstrate the strength of relationship that exists between the items and the factor. The closer an item's loading value is to 1, the stronger and more significant its relationship is to the factor.

This data demonstrates that when viewing the basking Hawaiian green sea turtles, the important aspects of visitor satisfaction were influenced by the following: 1) the proximity and accessibility to the sea turtles, 2) the naturalness and authenticity of the event, 3) the viewing provoked emotions toward witnessing the



overall event, 4) the viewing stimulated an emotional connection with the sea turtles, 5) the delight of viewing an endangered animal, and 6) the importance of the basking turtles to Hawaiian culture and their significance that allows visitors to feel a sense of place during their visit.

The two factors, viewing and accessibility, were also reflected in the comments some of the visitors recorded on their surveys. Commentaries regarding the two included expressions of excitement "LOVED IT" (#513), amazement, "absolutely amazing experience for both kids & adults" (#419) and appreciation of the turtles, "very nice to see and appreciate" (#198). It also encompassed the basking event itself, "this was a lovely and beautiful experience" (535), "so so glad I came. Will remember forever" (#412). Others felt that the experience was authentic, "amazing experience - felt very authentic" (#226). "It's nice to see these creatures in their natural environment instead of a zoo" (#278) and that the basking event was something they would cherish, "viewing these amazing creatures has been a wonderful experience & one I will treasure" (#142).

Additional visitors expressed a request to keep the viewing going so different generations could witness it, "amazing area please keep for our children's children to see" (#398) and one individual stated it would always be a distinctive memory of Maui, reflective of a sense of place, "thank you for the access to the turtles - it was wonderful and will always be a special memory of Maui" (#390).

The viewing experience elicited emotional responses from visitors. These consisted of both affection, "I like turtles!" (#274), "beautiful turtles" (#239) and concern toward the turtles, "thank you for helping protect these beautiful creatures" (#155). Additional concerns will be addressed further in the visitor attitudes section. One individual commented that they searched at length for the turtles, "we searched

for 4 days for the turtles. We are thrilled to finally see them” (#206). While not data supported, the researcher personally experienced a woman in tears watching the sea turtle basking event, as the visitor expressed it was her bucket list wish and was overcome with emotion.

The two factors, viewing and accessibility, concur with much of the literature reviewed on natural events. The commonalities between the reviewed studies include proximity as Kruger, M., Viljoen, A. & Saayman, M. (2013) found this attribute was an overlapping factor in the wildlife viewing literature the author’s reviewed, since visitors to the wildflower blooming event sought to have clear views of the flowers. The clear views relate to visitors desiring to be close to the sea turtles.

Important visitor motivations of the wildflower study also included easy accessibility to the park, similar to visitors of the basking sea turtles having easy access to the beach/basking site. Salute to the sockeye salmon run visitors also agreed that viewing the event allowed for a “unique opportunity to see and interact with the First Nations” (Kruger, Saayman & Hull, 2018, p. 11), similar to connecting the basking sea turtles with Hawaiian culture.

Emotional connections during the viewing experience were equal to the visitors expressing sentiment toward the animals and feelings of a sense of wonder or awe, as seen in Ballantyne, Packer & Falk’s (2010) study. Also, natural events were articulated by visitors, as memorable experiences that contributed to visitor well-being in Kruger, Saayman & Hull’s (2018) research. Finally, the visitor’s desire to experience the authenticity and spectacle of the event itself was evidenced by Kruger, M., Viljoen, A. & Saayman, M. (2013), who discovered visitors were motivated to attend natural events to appreciate the wonder of nature.

The surprise in all the factor analyses performed, was the low loading score and unmeaningful relationship of the variable, 'A photographic opportunity'. This placed high as one of the motivational attributes visitors expressed, as part of what constituted a memorable experience in 2014 Salute to the Sockeye Salmon Run event (Kruger, Saayman & Hull, 2018).

This concludes the measurement of Orams (1999) visitor satisfaction outcome indicator (step 1). Next, the analysis will address step 2, visitor learning.

### **5.3: Visitor Learning**

The questions in this category sought to collect data on the interpretation given by Hawai'i Wildlife Fund (HWF), as education was one of the management strategies represented in Orams (1999) model to facilitate the visitor from learning (step 2), toward a shift in attitudes (step 3). The researcher also wanted to determine, the information visitors learned while viewing the basking event.

Before witnessing the basking event of the Hawaiian green sea turtles at Ho'okipa Beach, just over half of all visitors stated they had no prior knowledge of responsible sea turtle viewing guidelines. Nearly the same number of individuals received information about the basking sea turtles, from a volunteer with HWF. The impact of interpretation provided by HWF was further evidenced by the observations left by visitors, on the survey.

Many expressed gratitude for the information volunteers provided and for the ability to speak to the volunteers, "awesome experience! Nice to get up close and learn and ask questions" (#186). Visitors stated they had fun and enjoyed learning about the turtles, "loved learning! Thanks for sharing" (#424) and cared about the volunteers on the beach who protect them, "really enjoyed learning (seeing) about the turtles & those who are trying to protect them" (#163). There were visitors who

also expressed appreciation toward the volunteers and the effect it had on the basking experience, “thank you for a memorable & educational experience” (#401).

A high majority of visitors reported that viewing the basking Hawaiian green sea turtles had caused them to care more about sea turtle conservation and their environmental choices. Accordingly, two separate requests came from visitors who wanted “more information at the basking site” (#554), including information on how they could help protect the sea turtles “I would like more information on how to help conserve” (#511).

These findings correspond to the salmon run study by Kruger, Saayman & Hull (2018), who reported that people enjoy travelling to natural events to have their lives enriched and to learn. Primary and secondary interpretation was regarded as one of the top factors important in experiencing a memorable viewing event in Kruger & Saayman’s (2017) wildflower study. Both Ballantyne, Packer & Falk (2010), and Zeppel (2008), noted that positive visitor behaviours revealed themselves when learning was combined with emotion. Visitor attitudes, step 3 of Orams (1999) outcome indicators, will be analyzed subsequently.

#### **5.4 Visitor Attitudes**

To determine visitor attitudes, which Orams (1999) states is one of the building blocks involved to move the visitor towards environmental stewardship, a second exploratory principal component factor analysis, based on Eigenvalues greater than 1, was completed on an additional 12 questions arranged in a Likert scale in SPSS (v.24). As before, the factor analysis was completed with a Varimax rotation with Kaiser Normalization. A loading value of .5 or higher was the determining aspect of variables belonging to a factor. Loading values below .5 were

supressed in the analysis. The weighting measures included: Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, and Strongly Disagree = 1.

This factor analysis was run twice. The initial analysis showed question #33, “I would not support a visitor park fee, but would donate to HWF to support them with visitor and site management of the basking sea turtles at Ho’okipa”, as having a loading value below .5. This variable was removed, and the analysis was run a second time. This factor analysis presented 11 variables cleanly loaded, with values greater than .5, reduced into two factor components. Factor One contained 7 variables and Factor Two consisted of 4 variables. After rotation, Factor One had an Eigenvalue of 4.079 and explained 37.077% of the variance. Factor Two had an Eigenvalue of 2.568 and explained an additional 23.342% of the variance. Combined, these factors explained 60.420% of the variance.

Cronbach’s Alpha test of reliability awarded Factor One a value of .874 (very good reliability) and Factor Two .783 (good reliability). The KMO assessed a value of 0.888, indicating a successful sample size for factor analysis and the Bartlett’s Test confirmed the correlation was significant at the  $p < 0.001$  level (2-tailed).

**Table 5.3: KMO and Bartlett’s Test of Sphericity  
Visitor Attitudes Likert Scale**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.888
Bartlett's Test of Sphericity	Approx. Chi-Square	2618.395
	df	55
	Sig.	.000

Once again, the value of the variables in the components that loaded high were recognized primarily, followed by what the variables were measuring, and then by what all the variables within a component had most in common. The components were then re-named as: Sea Turtle Encounter and Site Management.

**Table 5.4: Visitor Attitudes:**

	Sea Turtle Encounter (Factor 1)	Site Mgmt (Factor 2)
Q.24 Sea turtles/wildlife are more than tourism objects.	.822	
Q.25 It is my responsibility to participate in ethical wildlife encounters.	.763	
Q.22 I benefit from viewing the basking green sea turtles.	.738	
Q.27 Protecting the sea turtles protects their significance in Hawaiian culture.	.738	
Q.26 Sustainability of viewing the turtles basking at Ho'okipa depends on visitor and site management.	.720	
Q.23 I believe there are actions I can take to help the turtles.	.720	
Q.28 The basking green sea turtles should be minimally disturbed.	.676	
Q.29 The number of people around the basking sea turtles concerns me.		.814
Q.30 The number of people in the water at the ocean entry concerns me.		.776
Q.31 I would view the turtles from a platform to make less impacts on them, while still allowing me the experience.		.749
Q.32 I would support a modest park visitor fee at Ho'okipa.		.672
Eigenvalue	4.079	2.568
% of Variance Explained	37.077%	23.342%
Coefficient Alpha	.874	.783
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 3 iterations.		

This data is supportive of visitor's knowing what constitutes appropriate conduct, when viewing the basking Hawaiian green sea turtles and their viewing experience. It also corresponds with the answers to the survey questions of what being a responsible tourist means to them, as they identified respecting wildlife and their habitats, not disturbing turtles, and obeying signage, rules, and cultural norms. However, while there is a strong relationship that visitors believe they have a responsibility in participating in ethical wildlife encounters, the relationship is a little less confident there are actions they can take to help the sea turtles. This may be where more information from HWF, can come into play.

Many visitors were highly supportive of HWF and the volunteers present on the beach, "so glad you are here protecting these turtles!" (#493) and "I'm glad to see a representative at this beach looking after the turtles" (#540). These are the tourists that are accountable for their behaviours, yet, there were many visitors who were not. These visitors got in the way of the basking sea turtles, disregarded signage, site barriers, and recommendations by volunteers. The responsible visitors want more protection for the sea turtles and improved site management, as concerns for both ruined their viewing experience of the basking event. When given the choice, these same visitors stated they would pay a visitor fee and view turtles from a viewing platform to both have their experience, while protecting the sea turtles.

These opinions, of their viewing experience and the basking site, were reinforced by the observations visitors left on their surveys. They included: requests to keep people away from the turtles, "keep people out of turtles!" (#256), comments of too many people are around the turtles disturbing them, "the turtles should be protected here - especially near the sea. Too many people disregard the signs and volunteers" (#483). The current viewing area should be restricted, "I feel way too many people around the turtles and disturbing them. This should be "off limits" and

viewing from distance only" (#263). Frustrations of visitors were expressed, "too many people not following the rules, frustrates me" (#348), another visitor stated they "get flustered by tourists touching turtles at Black Rock area. People need to know more information readily when staying" (#299). Additionally, a visitor described how disheartened they were to see how others did not follow guidelines "so disappointed to see how the few feel they are above following guidelines! It's about "their" experience. People "swimming" to take picture right next to them. Ruined the experience to a certain extent as I wanted to yell [move away]" (#117).

Further comments included visitor restriction "It would be nice to see more restriction on how close you can get to the turtles" (#541). "This is a special experience that appears to need additional conservation efforts" (#223). Another stated they, "would support more structure to ensure turtle safety" (#482). "It is sad to see disrespect to the turtles by those viewing them" (#108), "too many were walking past signs. Something more needs to be done to keep them safe" (#104), as well as the suggestion to instate "user fees" (#394), at Ho'okipa Beach.

This data relates strongly to Le Boeuf and Campagna's (2013) elephant seal study, where the two researchers stated the protection of the seals must come first, as free unrestricted access to the seals not only has the potential to harm them, but the viewing experience itself. It confirms that a location exhibiting a mass tourism presence of turtle novices alters the limits of acceptable change (LAC), which also forces the location to find a way to deal with the novices (Duffus & Dearden, 1990). It also demonstrates, that the tourists that felt most emotionally towards the sea turtles advocated for a transition of visitor behaviour to change and it was this emotional connection Hughes (2013) discovered to increase positive behaviour intentions of visitors. The discussion will focus on visitor behaviour, step 4 of Orams (1999) model, next.



## **5.5 Visitor Behaviour**

Nearly 30% of visitors stated they would participate in sea turtle conservation with HWF during their trip, if the opportunity presented itself. An additional 47% answered 'maybe' to that question. The results demonstrate that there is potential for HWF to secure more volunteers by increasing the information at the basking site in regard to the opportunities for visitors to become involved. Two visitor comments included "we would love to get involved. We love the turtles" (#102) and "an amazing humbling experience that I will never forget. It inspires me to do more when I get home" (#105). It may help to facilitate the transition of the visitor toward stewardship further, as 9% of visitors participated in a conservational organization back home, which were mostly animal related. These people already are emotionally connected.

The visitor behaviour portion of the survey experienced survey fatigue. The researcher wanted to find out if visitors did not participate in conservation activities, what the barriers/reasons were for visitors. Although the means for the respondents were low for this question, the emergent themes are worth mentioning. Only 10.7% of those who answered stated the reason was because it cost money. The top three surfacing reasons were: 1) people had no time (31.7%), 2) there were no direct experiences where people lived (23.7%), 3) they did not know how to get involved (21%).

There appears to be a disconnect for visitors getting this information and perhaps some of the 47% of those that answered 'maybe' to participating with HWF, just need to find out how to become involved and what it entails?

Behaviour change is a difficult subject, with many variables. Good intentions do not always result in positive changes of any kind. In the reviewed literature,

Ballantyne, Packer & Falk (2010) found that new knowledge outlived behaviour changes when seeking to understand the transition of a visitor to embark on a behaviour change and recommended activities for visitors to participate in, post experience. This was also advocated by Forestell & Kaufman (1990), in their interpretation model.

In summary, the measured Orams (1999) outcome indicators shows there is great visitor satisfaction (step 1) in the event itself and viewing the basking sea turtles in their natural environment. Visitors connected emotionally to the turtles, which facilitated their learning and further enhanced their viewing experience with HWF (step 2). Visitor attitudes reflected responsible and sustainable tourist behaviour knowledge, yet many addressed concerns of those who chose to disregard their accountability and voiced their anxieties regarding site management. This reflected a mixed and somewhat conflicted viewing experience for many visitors (step 3). The most deficient area of Orams (1999) outcome indicators was visitor behaviours (step 4). While there were visitors who exhibited good intentions toward sea turtle stewardship, opportunities for transition did not occur. How visitors can get involved with HWF and help conserve the sea turtles while on holiday or when they go home, was unknown to the visitors.

## CHAPTER 6

### CONCLUSIONS

This study cannot truly determine whether visitors will transition into more responsible tourists, without the completion of a post longitudinal study of visitor behaviours. There is some evidence to support that the impacts the basking sea turtles have made on visitors may offer behaviour intentions in that direction in the future. Yet, there are several challenges to get through before that end may be realized.

To facilitate visitor transition toward stewardship, Orams (1999) outcome indicators measured what visitors considered a satisfying viewing experience. Visitors in Hawai'i expressed the emotions they felt and what their positive behavioural intentions may be in the future. The basking event also included interpretation programs delivered by HWF as a tourist managerial strategy, however, the beach is overrun with visitors, and often HWF volunteers are spread out thinly. Maui County must aid in this situation by taking control of the visitors, and their numbers to reclaim some natural order to Ho'okipa Beach Park. *The Tragedy of the Commons* (Hardin, G., 1968) is greatly affecting visitor transition into more responsible tourism and the sea turtles are the ones suffering the consequences. Once measures are taken to manage Ho'okipa Beach Park initially, then visitor interpretation can be established, mediated, and perhaps optimistic changes toward behavioural and lifestyle transitions toward more responsible tourists, can prevail.

## 6.1: Recommendations

The Orams' (1999) Outcome Indicators used for this study are part of a larger framework that incorporates various interventions used to manage marine tourism encounters. To shift visitors toward a successful transition into becoming more responsible tourists, I recommend Maui County employ all four of Orams' (1999) management strategies: physical, economic, regulatory and educational.

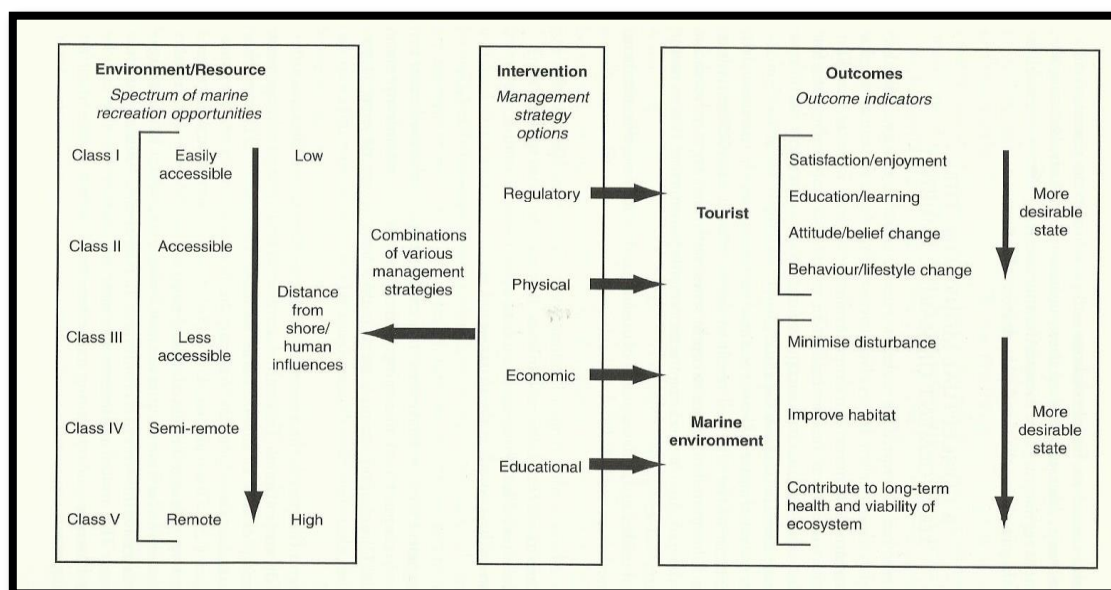


Figure 6.1: Orams (1999) Conceptual model for the management of marine tourism.

Physical strategies are physical structures that control activities. Regulatory strategies include forming rules and regulations for people to abide by. Economic strategies include fines and fees and Educational strategies involve signage, printed material, visitor and interpretation centres (Orams, M., 1999).

Since Ho'okipa Beach Park is easily accessible, the simplest immediate strategy is to have the entry gate to the park promptly closed at 7pm. Currently, both the entry gate and exit gate remain open, so surfers and beachgoers may exit the park. However, it still creates access to visitors who come into the park to see the turtles before park closure. If the entry gate is closed at 7pm, the flow of traffic

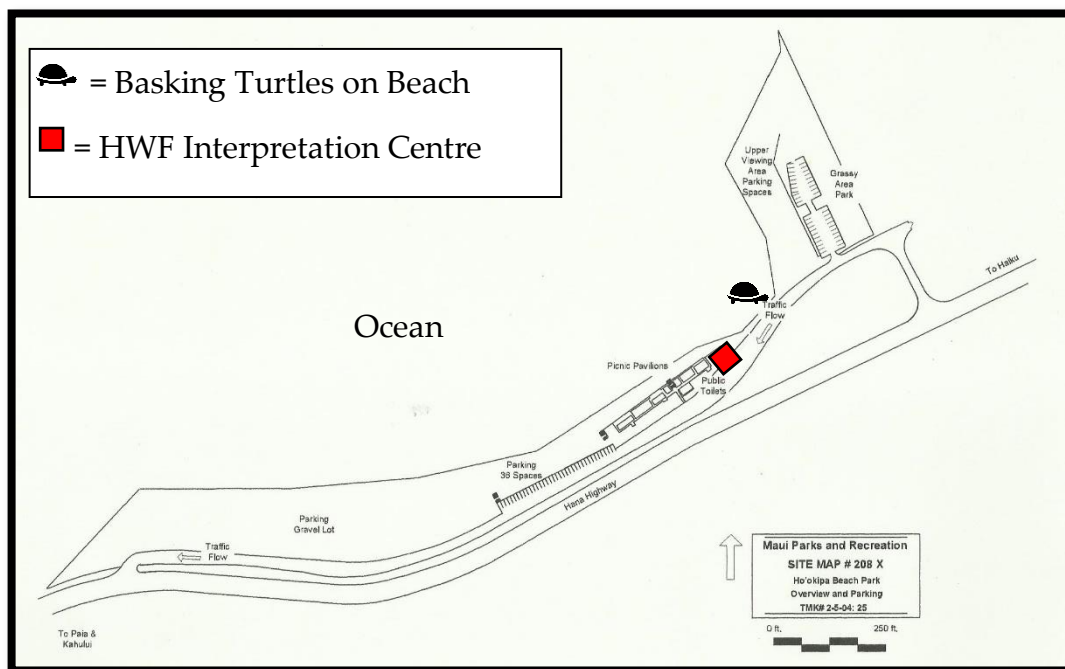
is forced to exit in one direction out of the park and no new tourists may enter. The way the exit gate is positioned from Hana Highway makes it more difficult to enter the park from the reverse direction. Although it still is not impossible for visitors to enter the park this way, they would encounter oncoming traffic from vehicles leaving the park. This provides for less volume of last minute visitors trying to get access into the park to view the turtles. It reduces the tourist numbers at the end of the evening for Hawai'i Wildlife Fund to have to deal with and creates less of a chance the green sea turtles will have to endure another uninformed visitor using flash photography.

Two other strategies include setting up a toll booth and designating the existing open area next to the picnic pavilion to be the basking sea turtle viewing and interpretation platform.

Both the Iao Valley State Park (State of Hawaii, 2017) and Haleakala National Park (U.S. National Park Service, 2018) have set up toll booths charging a modest visitor park fee for use and maintenance and in the case of Haleakala National Park, utilizes an online reservation system for visitors to reserve spots for sunrise viewing. The option here is to allow free Ho'okipa Beach access to Hawai'i State residents by way of a pass or some other sort of identification but charge the visitors park entry fees. There are approximately 36 parking stalls located on the lookout portion of the park. The county could set up an online visitor reservation system for those 36 stalls only, charging for daily passes, significantly reducing the mass volume of tourists. If visitors want to surf or snorkel they will reserve a spot and pay the fee. This rule could be excluded during the periods of the year annual surfing or windsurfing competitions take place. The country could also include a bus service that runs to Ho'okipa. While visitor reservations do not prevent

individuals from approaching the turtles on the beach, there would be 36 stalls of visitors to monitor, not mass tourism of visitors. The idea is reduction or deliberate restriction of visitors, not residents, to a desired means. If visitors are opposed to the fee, there are plenty of beaches they have access to, in west and south Maui.

Another option would be to require visitors wishing to view the basking sea turtles to book the experience with a tour guide company, or by way of a park & ride system, which reserves its time through HWF. There is access for at least three to five buses that hold 8 to 25 passengers, alongside the entry to the park and lookout area. These visitors enter the park by tour bus/tour guide only. The driver escorts the visitors to the viewing platform area, which already overlooks the beach where the green turtles bask. In this area there can be mediated interpretation, printed materials, and a visitor donation box for HWF. The visitors receive their experience of witnessing the basking event, eliminating issues of



**Figure 6.2: Map of Ho'okipa Beach**

violating boundaries and encroaching on turtles and are instead offered current opportunities to participate with HWF in sea turtle conservation during their trip. Proceeds of this partnership are split by the county, to maintain the park and pay for toll employees, and for the services provided by HWF.

While 28.0% of visitors said they would participate in sea turtle conservation with HWF, 47.1% stated 'maybe'. An emotionally satisfying viewing experience combined with an educational interpretation medium could be the turning point for visitors to find out more about the HWF organization and engaged in activities that transition the visitor into a more responsible tourist. This is additionally important as they visit and experiencing other parts of the island.

I endorse following the model Iao Valley State Park (State of Hawaii, 2017) and Haleakala National Park (U.S. National Park Service, 2018) by charging tour guide companies the same park entry fees enforced by the Public Utilities Commission based on the size of the passenger vehicles. I would also recommend charging a 2% or 3% tax on tour guide companies, like a hotel tax, as they have reaped the benefits of paid tours and tip earnings at length, while HWF has been the one to monitor their visitors and impart education without receiving any money, exhausting unpaid volunteer resources.

If a toll booth model is unacceptable to the county, I recommend HWF set up a small table on the beach by the viewing area with more interpretational materials visitors can access. This includes opportunities for how visitors may be able to get involved with HWF.

Signage needs to be placed on all the beaches around Maui, but specifically at Ho'okipa, reminding people that green sea turtles are protected by U.S. State and Federal Law (Hawaii State, 2017) and regarded as threatened under the

Endangered Species Act (ESA). Enforcement of signs and fines for non-compliance by legal authorities allowed to enforce must take place. Regulations are a waste of time without enforcement. Posting of the ESA penalties charged for harassment of green sea turtles, and signage advising people to stay a minimum distance of 15 feet from turtles is also recommended. Although distance from the turtles is not enforceable, an individual who goes up so close to a turtle that it moves/becomes disturbed, is grounds for enforcement under U.S. State and Federal Law (Hawaii State, 2017).

Signage posted should be teleological in nature. Teleological signs are those that include explanations with instructions (Marschall, Granquist & Burns, 2017). Researchers Marschall et al. (2017) discovered that teleological signs were more effective on visitors in a wildlife viewing site than ontological signs, which are signs without explanations. It would serve Maui to have these in at least one other language, besides English.

The local community on Maui must take ownership of fueling the fires, by telling visitors where to find the turtles. Hotels, especially ocean front resorts, should inform visitors during check-in to keep their distance from turtles and what proper sea turtle viewing guidelines are. Offering a rack card that discusses sea turtle viewing guidelines that can be give to the visitor along with their key along can outline these behaviours in writing and provide the contact information of the Hawai'i Wildlife Fund for conservational involvement. The same information/rack cards could be given to visitor centers, taxi drivers, restaurants, to give to visitors and frequently stated on the Maui Visitor Channel. Hawaiian Airlines could also get involved giving this information to passengers on board, as well as setting a precedence with international airline carriers who make regular flights into the Hawaiian state.



Physical hard site changes combined with regulatory, economic, and educational strategies, within a larger community initiative, will help foster the success of transitioning the Ho'okipa visitor into a more responsible tourist. Good for all concerned, should those visitors become repeat tourists to the island.

### **6.2: Limitations of Research**

Limitations of this research included the basking timeframe of the Hawaiian green sea turtles, toward the end of July. During this period, the turtles were emerging on the beach from 2 pm onward, until park closing. This made the randomization of my four-hour surveying interval, more challenging. The research was also to be over a two-month period, however, the researcher lost her accommodation and vehicle for this phase and the bus stopped one mile from Ho'okipa Beach. An attempt was made on a couple of occasions to walk the mile along the shoulder of the highway to the beach but did not feel very safe and the attempt was abandoned, since I had achieved over 100 surveys over the intended sampling number required.

### **6.3: Contributions to Future Research**

This research may be used as a baseline for future research on visitors at Ho'okipa each Park. Research to determine a visitor typology based on visitor motivations to attend the basking event and addressing the needs and opinions of locals about the visitors and turtles would be valuable. A longitudinal study would also contribute to a greater understanding of changes in visitor behaviour as a result of their experience at Ho'okipa Beach.

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## APPENDICES

### Appendix A

#### Survey: The Impact of the Terrestrial Basking Event of Hawaiian Green Sea Turtles on Visitors at Ho'okipa Maui

THOMPSON RIVERS UNIVERSITY

**The Impact of the Terrestrial Basking Event of Hawaiian Green Sea Turtles on Visitors at Ho'okipa, Maui**

**Aloha!**  
Thompson Rivers University (TRU) in Kamloops BC, Canada, in collaboration with Hawai'i Wildlife Fund (HWF), is conducting research at Ho'okipa Beach Park to determine the impacts visitors experience, witnessing the basking event of the green sea turtles (Honu). We also hope it will help us preserve the turtles and their basking site.

**Can you help us?** - If you are a visitor, 18+ years of age, we would be grateful if you could answer our survey about visitor experiences and your perceptions regarding satisfaction, learning, attitudes, and behaviors. It takes around 10 minutes to complete and includes 40 questions. Participation is strictly voluntary. You may withdraw from the study at any time, without negative consequences. Abandoned surveys will be shredded.

**Confidentiality & Use of Information** - Your responses are anonymous and cannot be traced back to you. Data is accessible to the investigator and faculty supervisor of Thompson Rivers University and Executive Director of Hawai'i Wildlife Fund, Hannah Bernard, only. Survey data will be entered onto a computer and password protected. Survey copies will be locked in an office. Data is destroyed 5 years post-study completion. The information will be used for presentation, publication, and basking site management.

This study is approved by the Thompson Rivers University Research Ethics Board  
TRU-REB@tru.ca / 250.828.5000

**For questions, concerns, and updates about this research, or to receive an Executive Summary once research is completed - please contact Thompson Rivers University members:**

- Colleen Black - Principal Investigator - 250.319.2789 - [blackc12@mytru.ca](mailto:blackc12@mytru.ca)
- Dr. John S. Hull - Faculty Supervisor - [jhull@tru.ca](mailto:jhull@tru.ca) - Thompson Rivers University

Completing and submitting the survey indicates an understanding of the purpose of the study and an agreement to participate. You are confirming you are 18+ years old.

A medium-sized Honolulu Cookie Company Custom Signature Gift Box!  
A \$17.95 value ~ Made in Hawai'i

**Enter to Win!** **Enter to Win!**

Mahalo for your koku! (Thank you for your support)

## Section A: Visitor Satisfaction Information

1a. Is this the FIRST time you have witnessed the basking green sea turtles at Ho'okipa?

Yes	No
-----	----



1b. If NO to 1a, how many times, have you witnessed the basking green sea turtles at Ho'okipa?

This trip	
Previous trips	

2. Including yourself, how many people are you viewing the turtles with? \_\_\_\_\_

3. How did you find out about the basking sea turtles at Ho'okipa Beach?

- A tour guide/company told you      Which one? \_\_\_\_\_  
 A hotel/B&B told you                      Which one? \_\_\_\_\_  
 Visitor Information Centre                  Location: \_\_\_\_\_  
 Media/Website Source                      Which one? \_\_\_\_\_  
 Other \_\_\_\_\_

How important were the following in achieving a satisfying experience when viewing the basking green sea turtles at Ho'okipa?

Very Important=5    Important=4    Neutral=3    Unimportant=2    Very Unimportant=1

4. The proximity of the turtles.	5	4	3	2	1
5. Easy access to the beach/basking site.	5	4	3	2	1
6. The number of turtles at the basking site.	5	4	3	2	1
7. Confidence the turtles would be basking.	5	4	3	2	1
8. Viewing an animal I normally do not see.	5	4	3	2	1
9. Seeing an animal on the Endangered Species List.	5	4	3	2	1
10. Viewing an animal important to Hawaiian culture.	5	4	3	2	1
11. Feeling a sense of place viewing the basking turtles.	5	4	3	2	1
12. The basking turtles are a memorable experience.	5	4	3	2	1
13. The basking event is natural and authentic.	5	4	3	2	1
14. Affection/Empathy towards the sea turtles.	5	4	3	2	1
15. A photographic opportunity.	5	4	3	2	1

16. Which THREE words best describe the emotions you feel from witnessing the green sea turtles bask?

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_



## Section B: Visitor Learning Information

17. Did you receive information about the basking sea turtles from a Hawai'i Wildlife Fund representative during your experience?  Yes  No

18. What are TWO facts you learned about the basking green sea turtles?

1. \_\_\_\_\_

2. \_\_\_\_\_

19. Viewing the basking sea turtles has caused me to care more about:

a) Sea turtle conservation.?

Agree  Undecided  Disagree

b) My environmental choices?

Agree  Undecided  Disagree

21. Did you have any prior knowledge of responsible sea turtle viewing guidelines, before your experience at Ho'okipa?  Yes  No

## Section C: Visitor Attitudes Information

Using the scale below, please indicate your responses to the following statements.

Strongly Agree=5 Agree=4 Undecided=3 Disagree=2 Strongly Disagree=1

22. I benefit from viewing the basking green sea turtles.	5	4	3	2	1
23. I believe there are actions I can take to help the turtles.	5	4	3	2	1
24. Sea turtles/wildlife are much more than tourism objects.	5	4	3	2	1
25. It is my responsibility to participate in ethical wildlife encounters.	5	4	3	2	1
26. Sustainability of viewing the turtles basking at Ho'okipa depends on visitor and site management.	5	4	3	2	1
27. Protecting the turtles protects their significance in Hawaiian culture.	5	4	3	2	1
28. The basking green sea turtles should be minimally disturbed.	5	4	3	2	1
29. The number of people around the basking sea turtles concerns me.	5	4	3	2	1
30. The number of people in the water at the ocean entry concerns me.	5	4	3	2	1
31. I would view the turtles from a platform to make less impacts on them, while still allowing me the experience.	5	4	3	2	1
32. I would support a modest park visitor fee, knowing proceeds assisted Hawai'i Wildlife Fund and Maui County with visitor and site management of the basking sea turtles at Ho'okipa.	5	4	3	2	1
33. I would NOT support a visitor park fee, but <u>WOULD</u> donate to Hawai'i Wildlife Fund to support them with visitor and site management of the basking sea turtles at Ho'okipa.	5	4	3	2	1

34. What does being a "responsible tourist" mean to you?

\_\_\_\_\_

\_\_\_\_\_

## Section D: Visitor Behaviour Information

35. If you had an opportunity to participate in sea turtle conservation with Hawai'i Wildlife Fund during your trip, would you?  Yes  Maybe  No

36. I actively volunteer/participate in a conservational/environmental organization now.  Yes  No If Yes, please name organization: \_\_\_\_\_

37. I would like to engage in a conservational/environmental activity but: Yes No

a). I don't know how to get involved.		
b). I don't have time.		
c). It costs money.		
d). There are no direct experiences where I live.		
e). There is poor infrastructure.		
f). There is poor management.		

38. We are all inter-connected. How will you help the basking sea turtles once you return home?

\_\_\_\_\_

\_\_\_\_\_

39. Pro-environmental habits I have now are: \_\_\_\_\_

\_\_\_\_\_

## Section E: Socio-demographic Information

40. I identify my gender as:

Male	1
Female	2
Transgender	3
Unspecified	4

41. Where do you currently reside?

City:	_____
Country:	_____

42. Year Born?

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Mahalo (Thank you) for your participation!

## Enter to Win!



<https://mallimages.mallfinder.com/Images/Store/HonoluluCookieLOGO.jpg>

Completion of this survey allows you to enter to win a **Honolulu Cookie Company Medium Custom Signature Gift Box**, containing 16 gourmet shortbread cookies.

A \$17.95 Value. Made in Hawai'i. **Draw will be held September 2<sup>nd</sup>, 2017 at 3:00pm (PST).**

Winner will be chosen via blind selection by Hannah Bernard, Executive Director of Hawai'i Wildlife Fund.

- Select: a). If I win ~ I Want Cookies **WITH NUTS** in my gift box.  
b). If I win ~ I want **NUT-FREE** Cookies in my gift box **ONLY**.

**By entering to win, I understand that the Honolulu Cookie Company uses nuts at/within their kitchen and nuts are/may be present at/within Honolulu Cookie Company store front facilities. This includes areas where packaging of cookies may occur.**

**I enter this draw voluntarily and understand there is no way to guarantee a 100% nut-free contamination of cookies in my gift box, should I win, and waive my right to impose liability on the principal investigator of this survey (Colleen Black), faculty supervisor (Dr. John S. Hull), Thompson Rivers University, Hawai'i Wildlife Fund (Hannah Bernard), and/or the Honolulu Cookie Company.**

Name: (Please Print) \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Email: (Please Print)

**You will be contacted via email for your mailing address, if you are the winner.**

Your contact information will be seen by the principal investigator of this survey (Colleen Black) and Hannah Bernard, Executive Director of Hawai'i Wildlife Fund, only. This information will be used to complete this draw. Entry forms will be kept in a locked office and destroyed one month post-draw completion.

## Appendix B

### TRUREB Ethics Approval Letter

June 06, 2017

Ms. Colleen Black  
School of Tourism\Tourism Management  
Thompson Rivers University  
File Number: 101592  
Approval Date: June 06, 2017  
Expiry Date: June 05, 2018

Dear Ms. Colleen Black,

The Research Ethics Board has reviewed your application titled 'The impact of the terrestrial basking event of Hawaiian green sea turtles on visitors at Ho'okipa, Maui: creating more responsible tourists.'. Your application has been approved. You may begin the proposed research. This REB approval, dated June 06, 2017, is valid for one year less a day: June 05, 2018.

Throughout the duration of this REB approval, all requests for modifications, renewals and serious adverse event reports are submitted via the Research Portal. To continue your proposed research beyond June 05, 2018, you must submit a Renewal Form before June 05, 2018. If your research ends before June 05, 2018, please submit a Final Report Form to close out REB approval monitoring efforts.

If you have any questions about the REB review & approval process, please contact the Research Ethics Office via 250.852.7122. If you encounter any issues when working in the Research Portal, please contact the Research Office at 250.371.5586.

Sincerely,



Andrew Fergus

Chair, Research Ethics Board