

# Effects of Ecotourism on Marine Life in Maui, HI

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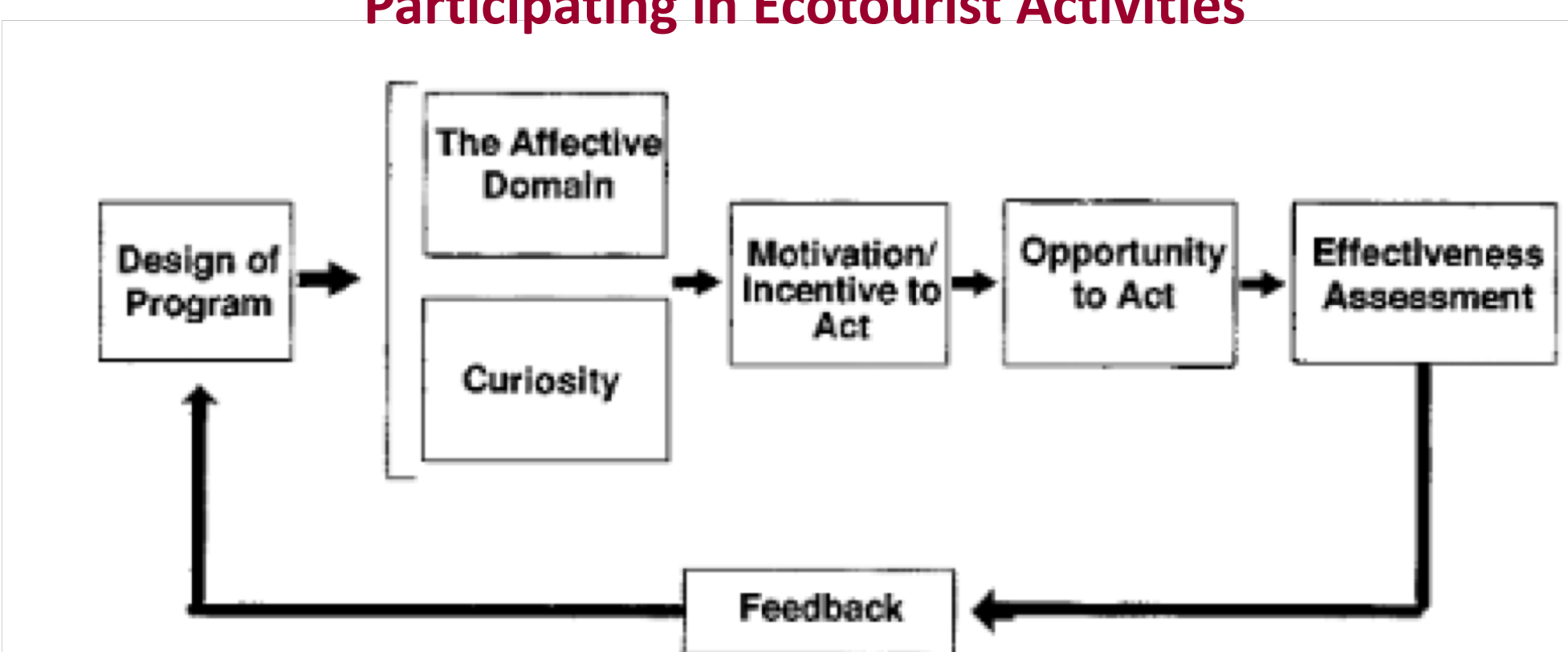
## ABSTRACT

Ecotourism is one of the fastest growing ways to experience the world. People travel thousands of miles to see what beautiful sights and animals have to offer. However, our increased traffic through these previously undisturbed areas could be doing more harm than good, and humans might not even realize it. Marine biologists and locals alike in Hawaii have started to notice ongoing changes in aquatic habitats. Methods include tagging and tracking aquatic animals as a hope that they are just migrating somewhere else, and not becoming extinct<sup>(3)</sup>. Scientists are also performing studies using surveys, gaging how knowledgeable the public is before and after going on their ecotours<sup>(1)</sup>. Coral reefs are being bleached, fewer whales (*Physeter microcephalus*) have been spotted, and turtles (*Chelonia*) are disappearing, according to those are more environmentally aware. Tourists are seeing fewer sharks (*Sphyrna lewini* and *Triaenodon obesus*) in shark cage experiences<sup>(2)</sup>, and less beautiful coloring of the coral reefs<sup>(9)</sup>. Ecotourism by design is supposed to help with ecological awareness for the general population. Increased awareness among tour participants, scientists, and tour guides has led to firmer policies for these largely unprotected habitats. With our national parks and the Environmental Protection Agency (EPA) closed during the government shut down, this is a more critical time than ever to be acting in protection of these ecosystems. Although some changes have been made, we still have a long way to go in creating a more sustainable way of exploring our planet.

## INTRODUCTION

Oceans are quickly becoming hotspots for trash and waste. Between the chemicals, plastic, and poor human decisions regarding tourism, as an outcome marine life is being negatively affected. This poster will focus on sustainable ecotourism practices around Maui, Hawaii. It will also lay out of how ecotourism increases environmental awareness for the public, and the affects this type of tourism has on marine ecosystems.

**Figure 1: Explanation of Public Thought Process After Participating in Ecotourist Activities**



The diagram shows a flow chart based on the public's interest in participating in conservation and eco-friendly behaviors. Generally participating in ecotourism sparks an interest in protecting habitats<sup>(10)</sup>.

Biologists and ecotourism companies alike are working together to determine what is harming the coral reefs as well as the aquatic animals<sup>(6)</sup>.

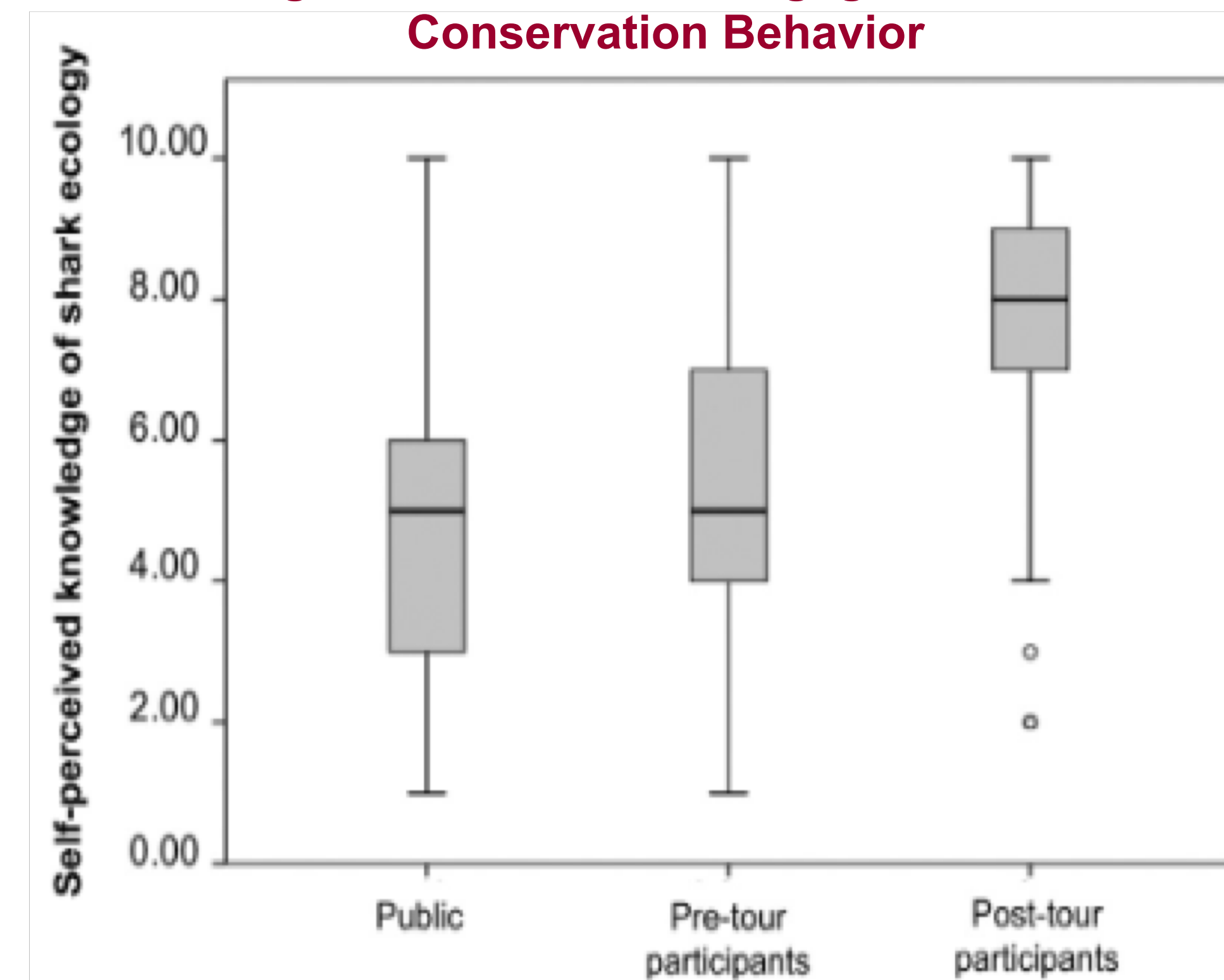
The interest in this topic came after travelling to Maui, and participating in several ecotourism activities. The hypothesis is that as more people participate in tourism or learn more about the dangers to aquatic life, the general public will have growing concern on how their actions affect the environment.

## METHODS

Researchers have used methods of tagging marine animals such as white tipped reef sharks, scalloped hammerhead sharks, and monk seals<sup>(3,8)</sup>. Populations of manta rays were also. Studied in the affected areas, as well as their daily habits and migration patterns<sup>(4)</sup>.

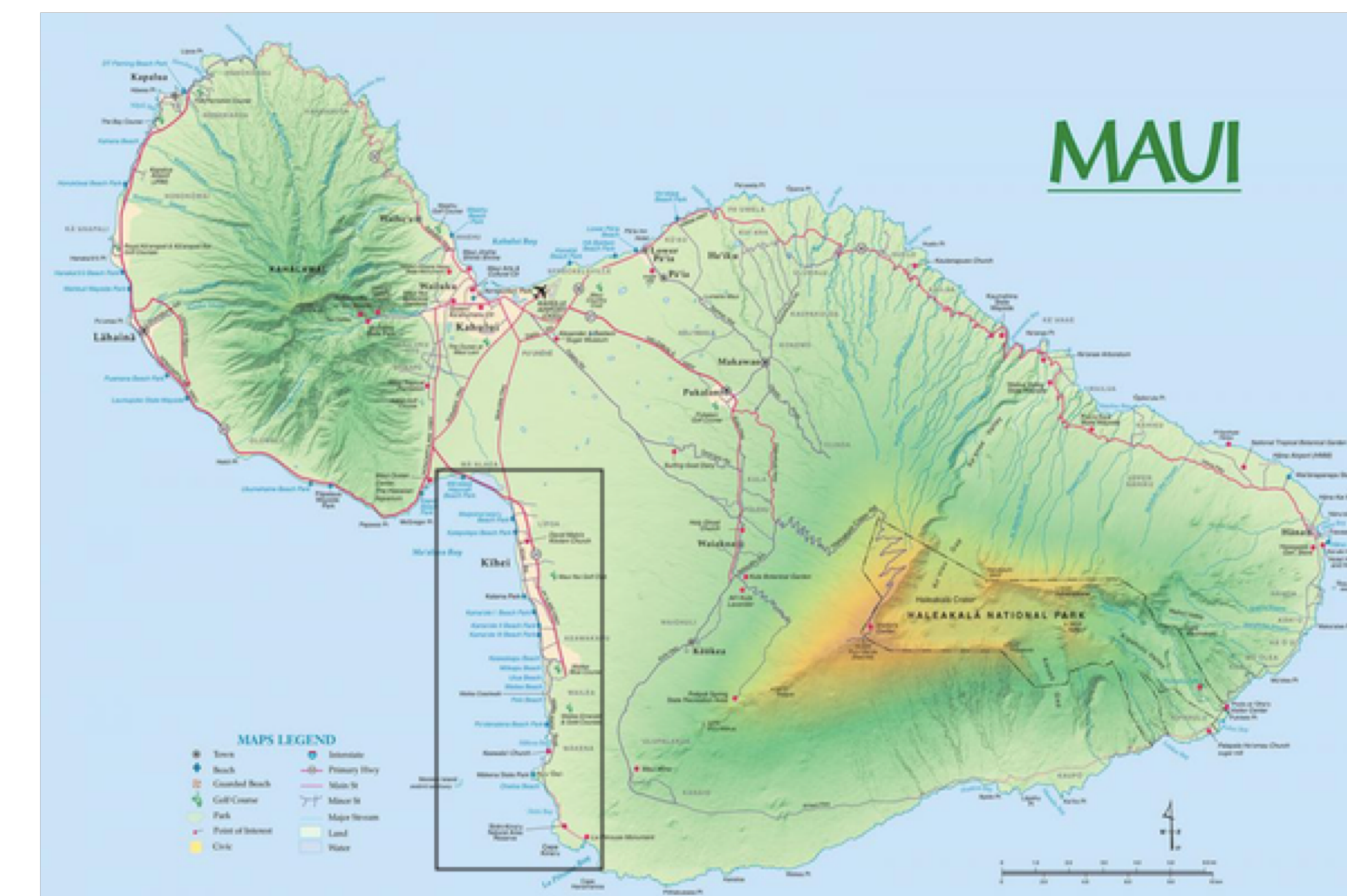
Another way research is being gathered is by ecotourism companies and scientists alike administering surveys to the general public. Scientists are working to determine if the positives outweigh the negatives of ecotourism. Positive outcomes found through research include people becoming more environmentally aware, making lifestyle changes to improve their sustainability, and an increased likeness to be more careful while in nature.

**Figure 2: Intention to Engage in Shark Conservation Behavior**



This figure shows the difference in knowledge of the importance of participating in conservation behaviors. The figure shows the steady increase in knowledge as people participate in ecotourism activities, such as swimming with sharks and going on educational adventures in the ocean.<sup>(1)</sup>

**Figure 3: Location of Studies Taken in Maui, Hawaii**



The box highlights where several articles are referring to as far as where on Maui the main traffic of ecotourism is taking place, and where the studies on marine life are taking place to judge the affects of tourism in their habitats.

Surveys were given to participants before and after the tours in order to determine whether learning about the ecosystems they were exploring and visiting had any affect on their possible behavior in the future<sup>(3)</sup>. Studies in Hawaii have sparked other areas of the world to begin similar research projects<sup>(7)</sup>.

## RESULTS

There is very little left of Hawaii that has yet to be explored<sup>(5)</sup>. Due to the beautiful nature and scenery on the islands of Hawaii, specifically Maui, it is to be expected that Maui will be heavily explored.

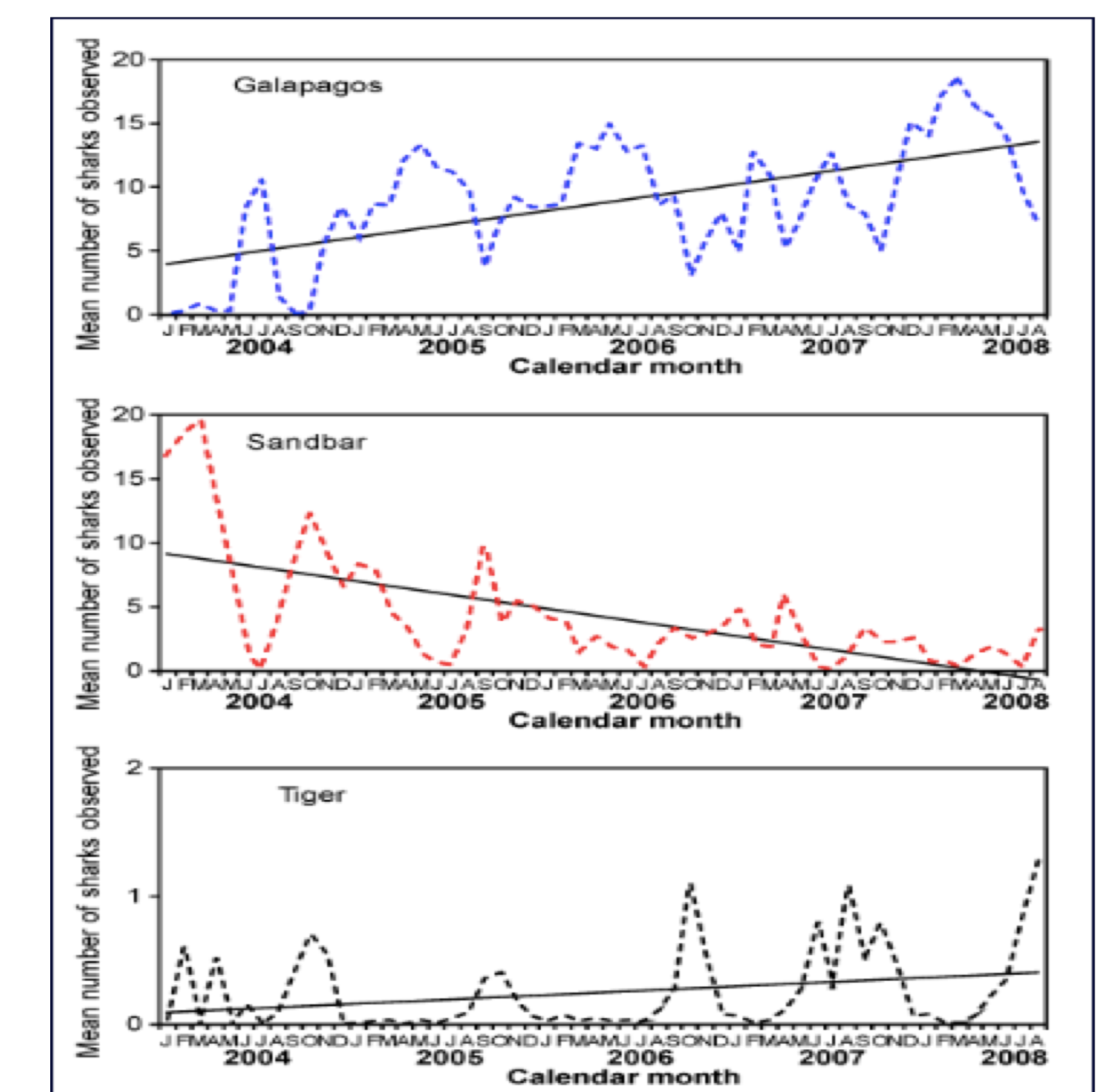
Results from the surveys given out before and after boating and snorkeling trips show that tourists are more likely to act more conservatively with their resources. Figure 2 illustrates a difference in willingness to act more sustainably between pre-tour and post-tour participants. It also shows that typically people who decide to go on outdoor adventures have more knowledge about how to live and cohabitate responsibly.

Figure 4 shows the trends in different shark populations since ecotourism has become popular on the islands. Populations in heavily toured areas have been fluctuating since 2004. In general, the Galapagos shark population off the coast of southern Maui has increased while Sandbar sharks have decreased. Tiger shark populations have fluctuated greatly in the last 15 years but appear to be on a trend of increasing.

## CONCLUSIONS

Hawaii's economy is built on ecotourism. As one of the most highly sought after vacation destinations, the state thrives off of ecotourism and adventure profits.

**Figure 4: Shark Population Near Common Sites of Ecotourism**



These 3 figures track the population of 3 different types of sharks near popular ecotourism areas. These are the common sharks seen during cage diving and/or snorkeling. Populations are being tracked in order to determine if ecotourism impacts wildlife populations.<sup>(10)</sup>

Research has begun to show that as more people go on these aquatic adventures, they are also becoming more environmentally aware and educated. The change in the future could lie in the hands of these tourists who go back to their homes and spread the knowledge they have gained on their tours. Humans are making an impact on these aquatic sanctuaries, and more research needs to be done in order to halt further exploitation.

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