An Analysis of the Economical Benefits of Shark Conservation
SCUBA Tourism Vs Shark Harvesting Industry

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Introduction

Shark species around the world are growing increasingly threatened as a result of mis-mangement, lack of leadership, socio-economic stress and a highly valued and increased product demand.

In order to assure the survival of these species communities and governments must realize that there are long-term and sustainable economic benefits to be gained by protecting shark populations.

In this research project I surveyed vacation divers from around the world to determine their beliefs, values and ideals regarding marine conservation, harvesting and tourism. The results obtained support my thesis statement in stating that there is economic value and potential to be gained by placing a higher priority on marine conservation over exploitation.

Background

Originally a chinnese delicacy, shark fin soup is now found around the world. It continues to be a symbol of status, success and luxury.

As the growing middle class of China becomes more affluent their desire to 'publicize' their social status is often done so through the purchase and consumption of shark-fin soup.

As demand increases in China , Japan and other Asian countries large commercial freighters from around the world set out looking to find the fins that can land them near $500/pound. World trade in fins has surged from 4,900 metric tons in 1987 to 13,600 metric tons in 2004.

Photo I: Piles of dried shark fins in a restaurant in Hong Kong.
Photo: Alexandra CHeney

Evaluating the Vulnerability of Shark Populations.
'K-Selected Species'

Similar to humans, sharks have a large body size, slow growth rate, and a late attainment of sexual maturity all of which contribute to their slow reproduction rates. Sharks produce few offspring whom require extensive prenatal care until they reach maturity. Sharks reproduction is heavily influenced by the overall size of the breeding biomass. Meaning that scientists have noted the number of young produced corresponds to the quantity of the areas breeding shark population.

The Important Role Sharks Play
'A Keystone Species'

A large concern over the fate of sharks is generated as a result of their elevated placement in the food chain. Sharks are top-predators who have held a keystone role in the health and abundance of other marine species for the past 400 million years. Drastic and traceable effects are evident all the way down the chain, to even the simplest photosynthetic organisms when shark populations are unnaturally effected (Tolpelko, 2005)



Photos: White-Tip & Hammerhead Sharks off Wolf Island, Galapagos – Ecuador. By: Aubrey Cook

A 2006 study conducted at the Imperial College of Conservation Science by Shelley Clarke, showed that an average of 38 million sharks are finned each year.

Goal of Survey:

Obtain information regarding the understandings, beliefs, opinions and general knowledge about marine environments held by certified divers. Analyze and draw conclusions as to how these personal beliefs influence marine resource value in individual travel patterns and recreational choices.

Hypotheses:

1.) A majority of divers surveyed will specifically name 'Sharks' as an important influence and a desirable species in their diving goals/activities.
2.) The maximum dollar amount divers are willing to spend on commodities involving marine resources, on average, will be significantly lower in categories where sharks are harvested as opposed to preserved.

Methods:

A survey containing 14 questions entitled "Dive Travel & Marine Resources" was administered to 26 recreational divers from the United States, Canada, Ecuador and Australia. The question structure ranged from multiple choice, to short answer as well as ranking/ordering responses. A large portion of the survey was designed with the objective of identifying those marine species divers most desire to see while diving, and the monetary value they would be willing to spend for those experiences. A portion of the survey was reserved for questions specifically addressed toward marine conservation.

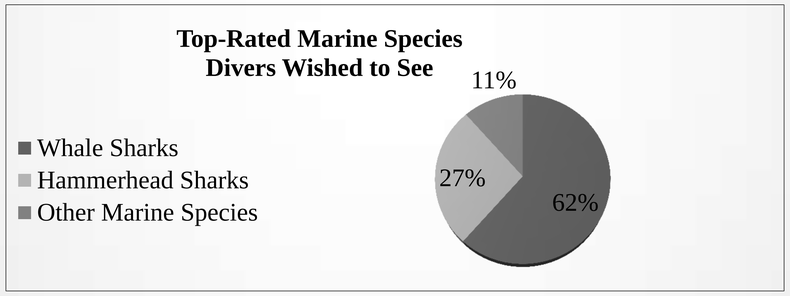


Figure I. Shows the top three marine species Divers named on their 'wish to see while diving' list.

Results:

Hypothesis #1 Result:

Divers were asked to list the specific top-three marine species they would like to see while diving, they were essentially creating their "Must See" list. Of the 26 divers surveyed 89% specifically named Hammerhead Sharks or Whale Shark in their top three list. This supports my first hypothesis that a majority of divers surveyed will specifically name 'Sharks' as an important influence and a desirable species in their diving goals/activities.

Hypothesis #2 Result:

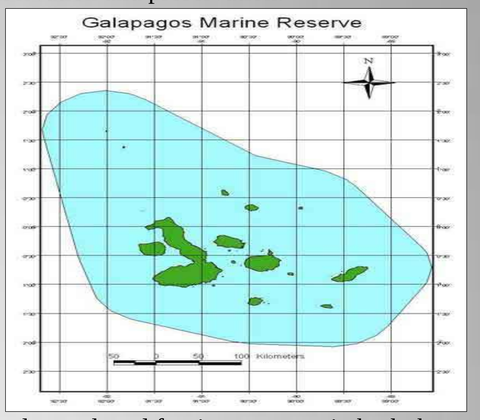
By combining and later averaging the maximum dollar amounts divers allocated on certain marine related experiences, one can begin to analyze where larger value and higher priority is held by the surveyed divers. The combined amount 26 divers were willing to pay for a bowl of shark fin soup was $101.25, averaging $3.89 per person. The combined amount they were willing to pay for 2 dives with hammerhead sharks was $5,520, an average of $212.31 per person. For a lobster dinner, the amount was $690.90, or $25.57 per person. This supports my second hypothesis, that from an economical standpoint it is wiser to preserve and conserve shark populations so they can be enjoyed in the venue of SCUBA and eco-tourism.

Additional Observations:

When asked to rank their top-three influencing factors in choosing a dive location, 92% of surveyed divers listed 'Marine Species' in their top three. Of those 92%, 69% placed 'Marine Species' in their top two factors. This further supports the importance and value to be gained by embracing conservation methods in marine ecosystems.

Case Study: Galapagos Islands

With over 95% of their land mass protected as a National Park, and a designate Marine Reserve (Figure II.)) that encompasses over 70,000 nautical miles, the Galapagos Islands are a world renowned, keystone example of conservation and preservation.



However, as the demand, and foreign pressure in both the tourism and the fishing industries increase the apparent opposition of lifestyle, values and priorities each sector embraces only clash more.

Long-lining and Illegal Commercial fishing has been identified as the single largest threat to Galapagos Marine Life. Eliecer Cruz, director of the Galapagos National Park Service, states: "The illegal fishing for shark fins in the Galapagos has increased dramatically in the past few years."

Conclusions:

Through literature review, large corporation/organization's surveys and my own research questionnaire I can conclude the following:

1.) Marine species around the world are facing serious threats as a result of mismanaged and under-regulated human harvesting activities.
2.) Shark populations around the world are especially at risk as they are being exposed to increased exploitation as a result of the high demand being placed on their by-products by certain cultures.
3.) The field of Eco-Tourism, specifically SCUBA Diving tourism is increasing globally. This shift in demand may be a keystone component to the preservation and conservation of shark populations around the world.
4.) There is a large fiscal/economic benefit in pursuing the preservation of shark populations.

Suggestions:

In the case shark preservation and restoration of the Galapagos Islands I have constructed a series of recommendations, which can be classified into four categories and are based upon the recognized financial and economic benefit to preserving shark populations that my research has illustrated.

-Marine Reserve Management Regulations & Management
-Tourism Regulation & Management
-Scientific Data, Education and Further Research
-Funding & Support

**For a complete analysis of recommendations please see Appendix III.*

Sources:

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