UNIVERSITI PUTRA MALAYSIA

LOCAL TOURIST WILLINGNESS TO PAY FOR ENTRANCE FEE IN TIOMAN ISLAND MARINE PARK, PAHANG, MALAYSIA

ZULKHAIRIE BIN ZULKEPLI

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By

ZULKHAIRIE BIN ZULKEPLI

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

May 2020

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DEDICATION

This dissertation is specially dedicated to the two-special people in my life for their continuous support, love, encouragement, inspiration and motivation throughout my postgraduate study:

My Father, Zulkepli Bin Hamzah

My mother, Zubaidah Binti Yaakob

Thank you very much.

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By

ZULKHAIRIE ZULKEPLI

May 2020

Chairman : Nawal Hanim Abdullah, PhD
Faculty : Institute of Tropical Agriculture and Food Security

Tioman Island Marine Park, Pahang (TIMP) is a marine conservation area located in the South China Sea, off Pahang is about 32 nautical miles (56 km) northeast from Mersing, Johor, Malaysia. Located in the Coral Triangle area that spans from Malaysia to the Solomon Islands, TIMP is rich in marine biodiversity. This marine biodiversity attract tourists to TIMP for many years. TIMP was gazetted as Marine Park in 1998 and currently managed by Department of Marine Parks Malaysia. Since its establishment, the statistics show increasing tourists arrivals. There is only RM5 entrance fee for local tourist to TIMP, whether the foreign tourists were increase the amount to RM30 per entrance. This study is aimed to determine the entrance fee in TIMP by assessing the willingness to pay of local tourists (WTP) and come out with estimation total of entrance fee value at TIMP. In addition, the study also determined the factors influencing local tourists' willingness to pay for entrance fee in TIMP and come out with Ordered Probit Regression analysis. Next, the study was identified the socio-demographic, visiting characteristics, and satisfaction of local tourists on quality of site of Tioman Island Marine Park and come out with descriptive analysis.

Payment Card Contingent Valuation Method (CVM) was employed to elicit the values of WTP. The determination of these values directly represented the actual values of entrance fee TIMP area in Ringgit Malaysia (RM). From the monetary value, level of awareness amongst tourists towards conservation program can be illustrated. Another significant contribution is that the estimated WTP suggested a range of preferred price for entrance fee TIMP from local tourists' perspective. Data was collected in series of face-to-face surveys. A total of 335 useable questionnaires were obtained and used in the analysis. The respondents were 18 years old and above towards tourists visited TIMP. The questionnaire comprised of four main structures which were visitation characteristic, measurement of satisfaction site quality level, WTP and socio-demography. Using the Payment Card Choice format, twelve level of bids amount were provided. The Ordered Probit Regression analysis was conducted to determine the WTP model values by using the syllabic abbreviation (STATA).

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The findings of the Ordered Probit Regression analysis found 6 variables significantly influencing the values of WTP. The findings of the analysis showed that, most of the local tourists are willing to pay for the entrance fee based on 6 dimensions. There are (mean local tourist satisfaction), (marital status), (self employed), (income), (mid education) and (high education). The WTP entrance fee in TIMP is RM15.156 per person/ visit/year. From this, it was found that, most of the TIMP tourists were concerned on marine conservation program. Otherwise, this showed that the local tourists were willing to pay to maintain the quality of natural resources in TIMP. The findings of this study will be useful for the park management to make decision on the applicable of entrance fee in TIMP. Other than that, it will help the park management to improve the quality of managing natural resources and also to control tourists' behaviour in TIMP area.

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Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Sarjana Sains

KESANGGUPAN PELANCONG TEMPATAN UNTUK MEMBAYAR BAYARAN MASUK DI TAMAN LAUT PULAU TIOMAN, PAHANG, MALAYSIA

Oleh

ZULKHAIRIE ZULKEPLI

Mei 2020

Pengerusi : Nawal Hanim Abdullah, PhD
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Taman Laut Pulau Tioman, Pahang (TIMP) adalah kawasan pemuliharaan laut yang terletak di Laut China Selatan, di luar Pahang terletak kira-kira 32 batu nautika (56 km) timur laut dari Mersing, Johor, Malaysia. Terletak di kawasan Segitiga Karang yang merangkumi dari Malaysia ke Kepulauan Solomon, TIMP kaya dengan biodiversiti laut. Keanekaragaman hayati laut ini menarik pelancong ke TIMP selama bertahun-tahun. TIMP telah diwartakan sebagai Taman Laut pada tahun 1998 dan kini dikendalikan oleh Jabatan Taman Laut Malaysia. Sejak penubuhannya, statistik menunjukkan peningkatan kedatangan pelancong. Hanya RM5 bayaran masuk untuk pelancong tempatan ke TIMP, sama ada pelancong asing meningkat jumlahnya menjadi RM30. Kajian ini bertujuan untuk menentukan bayaran masuk di TIMP dengan menilai kesediaan membayar pelancong tempatan (WTP) dan mendapat keputusan dengan anggaran jumlah harga masuk di TIMP. Di samping itu, kajian ini juga menentukan faktor-faktor yang mempengaruhi kesediaan pelancong tempatan untuk membayar yuran masuk dalam TIMP dan mendapat analisis probit yang diperintahkan. Seterusnya, kajian ini dikenal pasti sosio-demografi, ciri-ciri kunjungan, dan kepuasan pelancong tempatan terhadap kualiti lokasi Taman Laut Pulau Tioman dan mendapat analisis deskriptif.

Kaedah Penilaian Kontinjen Kad Pembayaran (CVM) digunakan untuk mendapatkan nilai WTP. Penentuan nilai-nilai ini secara langsung mewakili nilai sebenar kawasan TIMP yuran masuk dalam Ringgit Malaysia (RM). Dari nilai wang, tahap kesedaran di kalangan pelancong terhadap program pemuliharaan dapat digambarkan. Sumbangan penting lain ialah anggaran WTP mencadangkan pelbagai harga pilihan untuk bayaran masuk TIMP dari perspektif pelancong tempatan. Data dikumpulkan dalam siri tinjauan tatap muka. Sebanyak 335 soal selidik yang boleh digunakan diperoleh dan digunakan dalam analisis. Responden berumur 18 tahun ke atas terhadap pelancong yang mengunjungi TIMP. Soal selidik ini terdiri daripada empat struktur utama yang merupakan ciri lawatan, pengukuran tahap kualiti laman kepuasan, WTP dan sosio-

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demografi. Dengan menggunakan format Pilihan Kad Pembayaran, dua belas tahap jumlah tawaran diberikan. Analisis Regresi Probit Teratur dilakukan untuk menentukan nilai model WTP dengan menggunakan singkatan suku kata (STATA).

Hasil analisis Analisis Regresi Probit Teratur mendapati 6 pemboleh ubah mempengaruhi nilai WTP secara signifikan. Hasil analisis menunjukkan bahawa, kebanyakan pelancong tempatan sanggup membayar yuran masuk berdasarkan 6 dimensi. Terdapat (kepuasan pelancong tempatan), (status perkahwinan), (bekerja sendiri), (pendapatan), (pendidikan pertengahan) dan (pendidikan tinggi). Bayaran masuk WTP dalam TIMP adalah RM15.156 setiap orang / lawatan / tahun. Dari ini, didapati bahawa, sebahagian besar pelancong TIMP mengambil berat tentang program pemuliharaan laut. Jika tidak, ini menunjukkan bahawa pelancong tempatan sanggup membayar untuk mengekalkan kualiti sumber semula jadi di TIMP. Hasil kajian ini akan berguna bagi pihak pengurusan taman untuk membuat keputusan mengenai bayaran masuk yang dikenakan di TIMP. Selain itu, ia akan membantu pengurusan taman untuk meningkatkan kualiti mengurus sumber semula jadi dan juga untuk mengawal tingkah laku pelancong di kawasan TIMP.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree Master of Science. The members of the Supervisory Committee were as follows:

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Declaration by graduate student

I hereby confirm that:

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TABLE OF CONTENTS

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LIST OF TABLES

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LIST OF FIGURES

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LIST OF ABBREVIATIONS

DMPM	Department of Marine Parks Malaysia
FGD	Focus Group Discussion
FRIM	Forest Research Institute Malaysia
MPA	Marine Protected Area
NGO	Non-Government Organization
IUCN	International Union for Conservation Nature
TEV	Total Economic Value
SCUBA	Self-Contained Underwater Breathing Apparatus
EV	Economic Valuation
SP	Stated Preferences
WTA	Willingness to Accept
TCM	Travel Cost Method
CVM	Contingent Valuation Method
RP	Revealed Preferences
PC	Payment Card
CS	Consumer Surplus
CM	Choice Modelling
DV	Dependent variable
IV	Independent variables
SI	Satisfaction Index
GN	Gender
LE	Level of education
ICN	Income
SPSS	Statistical Package for Social Sciences

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OPR	Ordered Probit Regression
CE	Choice Experiment
TIMP	Tioman Island Marine Park

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Tourism is the world's biggest and most diverse industry. Numerous countries rely on this industry as their most important resource for generating income, job, economic development, and infrastructure growth. Tourism Malaysia (2017) described that domestic tourists' travel have risen by 4.7% in 2016, achieving a record of 47,070 direct selling tickets to the user with a value of RM13.4 million, an increase of 2,213 than the previous year.

To deal with the rising demand for tourism in the country, convenience is a requirement to supply sufficient and high-quality infrastructures, particularly services for outdoor recreation as these are the favorite resources in the tourism industry (Fyall et al, 2019). However, appropriate development and implementation, particularly for outdoor recreation tourism, requires the right effort. Decision-makers illustrate the problem of how to allocate limited resources among competing utilisers. This can be prepared by comparing the marginal values and costs concerned in the allocation.

The tourism industry is presenting a lot of advantages such as economic, social, cultural, and environmental natures (Hamilton and Webster, 2018). Malaysia is not disqualified from this tendency. Tourism has turned out to be a significant industry in Malaysia since the 1980s (Kadir, 1995, 1997; Ministry of Culture, Arts and Tourism [MOCAT], 1996a; Tan, 1991). In year 2016, the industry retained increasing with an optimistic development. Tourist entrances in that year had improved to 47,070 with RM13.4 million (18.7% increase from the previous year) supplying to the country (Tourism Malaysia, 2017).

Being surrounded by the tropical regions, Malaysia has various nature-based tourism attractions such as beaches, caves, coral reefs, waterfalls, hot springs, mountains, wildlife sanctuaries, and birds. Furthermore, nature-based attractions are also supported by the government.

1.2 Marine Park in Malaysia

Marine Park is among various diverse names specified to marine areas that are sheltered by clear spatial restrictions (Williamson et al., 2019). Marine protected areas (MPA), fisheries reserves, sanctuaries, parks, and reserves (MacKeracher et al., 2019) are some of the frequently applied terms. In Malaysia, a Marine Park is an area of the sea zoned two nautical miles from the shore at the lowest low tide with the exception of Pulau Kapas in Terengganu, Pulau Rusukan Kecil, Pulau Rusukan Besar, and Pulau Kuraman in Labuan which is zoned one nautical mile from the shore at the lowest low tide. Marine Park is established to protect and conserve various habitats and marine

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aquatic life (Department of Marine Park Malaysia, 2017). There are a total of 40 marine parks in Malaysia that was spotted and enforced by DMPM.

In Malaysia, Tioman Island Marine Park (TIMP) Pahang is one of the popular oceanic based ecotourism places. The reefs of this area are considered as the most diverse and healthiest in the peninsula, and as the coral reef areas of TIMP are located within the 'coral triangle', it is also located in a region that has been classified as covering the uppermost diversity of coral species everywhere in the world (Reef Check, 2017). The reefs in the coral triangle bear over 3000 species of fish and include 75% of all coral species known to science and more than 600 genera of reef-building corals (The Nature Conservancy 2008). The coral triangle was identified as a main concern area for marine conservation whereby during the 2007 United Nations Climate Change conference in Bali, a promise to shield this marine environment was established among the countries of Papua New Guinea, the Philippines, Indonesia, and Malaysia. TIMP was gazetted as an environment reserve and Marine Park in 1998 to protect these precious resources. A Marine Park government detachment is currently on the island. TIMP is one of the 40 popular ecotourism destinations for local tourists in Malaysia.

In general, the utilisation of marine parks is controlled by the government. Usually, the reserves protect the fisheries or wildlife habitats and rare ecosystems (Ahmad, 2009). Heavy industrial activity and other exploits have great impact on animals and plants which is why habitats are generally regulated or forbidden within the limitations of a marine reserve (Thornhill, 2012). In Malaysia, the idea to establish MPAs was originally started in the early 1980s. In late 1983, the Ministry of Agriculture obtained an order from the Prime Minister of Malaysia to conduct an additional efficient action to keep several strategically located significant islands and their surrounding marine waters (Masud and Kari, 2015).

1.3 Importance 0f Economic Valuation of Marine Resources

Economic valuation (EV) is dissimilar with monetary economic valuation. Monetary economic valuation is simpler for ecosystem service features that exchange markets which otherwise can be linked to markets since market prices are presented. This indicate the scarceness of environmental goods and can be used as an alternative for their value (Lienhoop et a1., 2015). Hence, to fix the degradation dilemma of marine biodiversity, an assessment of the marine biodiversity resource is required to point up in terms of money (Thalany, 2014). Economic valuations are generally designed to evaluate conservation resources in developed countries but are now crossing into developing countries. Economic valuation is one of the customs to value the revolution in the stage of goods and services supplied by the environment (Shahwahid, 2008). This way, economic values can be confidential and this environment purpose presents option values, non-use values, direct use values, and indirect use values. However, many economic advantages are not assessable in market transactions and must be measured using non-market valuations (Vianna et al., 2018).

The estimation of the entrance fee in TIMP and satisfaction of visitors can be utilised to guide in the decision making for ecotourism improvement. It provides administrators with fundamental data to conduct any restorative activities that are required for the

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effective management of ecotourism in TIMP. Economic valuation would also be a promising method as it contains a wide scope of societal awareness regarding environmental values in policy decisions. At the same time, as economic promotions are helpful to generate political support, the relevant motives and public attitudes gained from such approach can further aid conservation. Only by recognising the attitudes of the public towards natural resource protection and management would the related management agencies as well as the government be able to face these challenges effectively.

Furthermore, EV is capable in handling the usage of marine resources. It can also support the marine management. Its technique can be used to assess the value of marine resources since the value will be exemplified in currency. It has been confirmed by Nuva (2009) that EV can assist economists, society, and the government to estimate the conflict of economic outcome and behavior on the resources and environment as well as to distinguish and guess the monetary value of economic compensation that people derive from environmental resources. Based on the values of willingness to pay (WTP) by tourists, it will impact the stage of enjoyment between tourists against marine resources utilisation. As a result, the value of the marine protected area and the value of the resources can be identified.

In economics, the standard practice is to utilise money at the same time as the standard welfare measurement since it is lightly divisible, and it corresponds to the general buying power of a big choice of goods and services. The money will create a special efficient measurement of the benefits of non-use goods. Benefits and costs that occurred with a change in the amount of an environmental amenity are measured in terms of individual preferences.

1.4 Problem Statement

"Marine Parks are protected areas in which activities that are destructive towards marine ecology are strongly prohibited. Only activities that are not destructive to ecology are allowed, this includes tourism. In fact, tourism is highly encouraged at these marine parks. However, uncontrolled and improper development of the tourism industry that encourage influx of high number of tourist arrivals have been suggested as an invitation to destroy the marine parks' ecosystem (Sala et al, 2018). Island tourism development in Tioman Islands has confirmed to be important in enhancing the prosperity of the community's economic and social environments (Rojulai and Anuar, 2018). Nonetheless, studies have shown the negative outcomes that are caused by improper management of island tourism especially towards the environmental attributes that may lead to irreversible damages (Mohd Shariff and Tahir, 2003; Teh and Cabanban, 2007).

The Department of Marine Park (2017) has reported that the number of tourists in Tioman Island Marine Park has been continuously increasing from year to year except in 2015 as shown in table 1. The influx of tourists to the island has triggered the increase of in-land development to cater for the needs of the tourists. The effects of these surges in development are attributed to the explosion of the crown-of-thorn

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populace which have caused the destruction of the wellbeing of the coral reefs. Information on the current biological status of the reefs and the population level of key pointer species are vital to provide guidance to the government's policy decision making as well as to increase education and awareness efforts on the possible unwanted effects of the tourism development. Although tourism development in the island is needed to support the livelihood of the local community, it is being argued that reasonable tourism development is being ignored by propagating the less expensive and lower quality forms of development and promoting the harmful mass tourism market (Reef Check Malaysia, 2017).

Table 1: Statistical domestic tourist's entrance to Tioman Island Marine Park

Year	Number of Tourist
2012	146,587
2013	163,103
2014	170,104
2015	164,027
2016	187,514

Source: The Department of Marine Park (2017)

Other than that, there is a lack of data on local tourists' profile and satisfaction on the facilities and services given in TIMP (Alif 2018, personal communication, 16 April). There is a need to examine the data identified and the opinions on what visitors see after their visits. Such data is essential for arranging and improving any recreational site. Other than that, it is also important to know the situation on marine resources updated.

In terms of literature gap, there are limited studies done on TIMP. One of the studies was done back in 2009 by Ahmad using the double-bounded dichotomous choice method CVM and travel cost method. Hence, this provides a platform to compare and re-evaluate the findings back in 2009 and now. The recent study done by DMPM, (2015) using willingness to pay (WTP) to conserve the marine ecosystem for future generations or equates the future value of current Marine Park is RM13.80 per person. This value exceeds the conservation fees charged to local tourists to the Marine Park.

Next, in terms of methodological gap, no studies have been found to use the 'payment card' (PC) technique in TIMP. The advantages of the PC technique are obvious. First, respondents' WTP values can be determined directly from the original data. Second, PC respondents tend to state which WTP values they are confident (Ready et al., 2001). Third, there is no starting point bias affecting the PC approach (Mitchell and Carson, 1986). Unlikely, the dichotomous choice has been widely used after Hanemann's

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seminal work (1984, 1991) and also recommended by the National Oceanic and Atmospheric Administration (NOAA), but it still faces a lot of problems, including starting point bias, uncertainty, inconsistent and strong assumptions (Ready et al., 1996, 2001; L. Venkatachalam, 2004; Hu, 2006).

In fact, "conservation fee" is calling to the current organisation practice for an entrance fee structure in TIMP. A entrance fee has been compulsory for visitors to the marine park since January 1999. The fee charged for conservation is RM5.00 per adult and RM2.00 for students, retirees, and children. The differential price was established during the beginning in year 2016 between domestic and foreign visitors whereby the fee for foreign visitors was increased five-time than before RM30.00 for an adult (DMPM, 2018). Nevertheless, the residents living inside the island are not charged an entrance fee. The fee collected is deposited in the Marine Park Trust Fund, administered by the DMPM for the purpose of management, maintenance, and infrastructure development in the marine park. Zaiton (2012) revealed that the National park will become monetarily independent if the access fee and customer fee methods are well-made and well-organised.

The issue is whether the entrance fee for domestic tourists of RM5.00 per adult and RM2.00 per student, retiree, and child are enough to generate the income required for the development and establishment of Tioman Island Marine Park (TIMP) as a protected area or also called a no-take zone aiming at protecting its unique biological and environmental value. Also, whether the fee charged is too low which is consequential in the open entrance to the park's resources and the market failure in controlling their use or over-use which may cause the environmental degradation in TIMP remain unknown for local tourists. Can the entrance fee value be sustained among local tourists since its introduction in 1999? Hence, this necessitates the need to revalidate the entrance fee for local tourists. This research will reveal the value of entrance fee among local tourists towards TIMP. The degradation of TIMP resources might harm the sustainability of the tourism sector in the future. Ramita, et al. (2016) said that extensive usage of the resource for various activities such as golf course, airport facilities, ferry facilities, and scuba diving activities in Tioman Island Marine Park may create potentially degrading impacts on the ecosystem. In some places in the marine park, the coral and other marine resources have been severely impacted by the irresponsible human actions such stepping on the corals by snorkelers, stealing of coral animals by divers, and carelessly anchoring boats on the coral gardens (Reef Cheek Malaysia, 2017).

Most of the environmental problems exist today are partly caused by irrational decisions involving the trade-off of natural resources for development project. Wildlife and its habitat are eliminated at a critical rate through tourism activities, the movement of ferries and boats, oil spills, development, and pollution (Islam et al, 2018). While most human activities are priced in some way or the other, there is a tendency to ignore entrance fee of many unpriced natural resources. No prices means no value. Hence, the benefits of development are often being overestimated (Clark and Sunderland, 2018).
This research estimates some of the unclear advantages of a natural good through economic valuation; the natural good being the marine biological community at TIMP. While there is an extensive variety of goods and services created at TIMP, this study is

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centred on the entrance fee with regards to ecotourism, recreational advantages, and facilities and services. Losing these natural resources also means that we are losing the long term revenue and even the beautiful scenery, scarce species, and finally, the purpose of the entire ecosystem. Apparently, the effects of wrong decisions are potentially huge and permanent. If all these resources are no longer available because of development, social welfare will definitely be lost.

1.5 Objective of the Study

The general objective of the study is to determine the entrance fee in Tioman Island Marine Park. The specific objective of the study is:

1. To identify the socio-demographic, visiting characteristics, and satisfaction level of local tourists on quality of Tioman Island Marine Park.
2. To determine the factors influencing local tourists to willingness to pay for the entrance fee in Tioman Island.
3. To estimate the willingness to pay for the entrance fee in Tioman Island Marine Park.

1.6 Significance of the Study

This research will contribute essentially to the state government, Department of Marine Park Malaysia, academician, visitors and the local community in Tioman Island, Pahang, Malaysia. In addition, incorporating and understanding these attitudes into planning efforts is important in developing effective strategies, communication, information, and programmes. In relation, the people's perception of what should be protected can be of benefit to many species including the rare and lesser known species, as in the case of Tioman Island Marine Park.

The relevant management authorities and government should recognise the implication of protecting marine park areas. One possible way to achieve this goal is through the use of economic valuation. Previously, the significance of Marine Park as a critical habitat has been well valued in monetary units. They become agreeable to benefit comparisons and standard costs. This will not only facilitate in justifying the protected status, but the management authorities can also fix for well-built budget distribution to develop their organisational abilities. Restoration or conservation projects can be prioritised. However, an additional comprehensive compensation framework can be equipped in case of environmental impacts or damages implicated when development projects are being executed.

The discoveries relating to this research could help the management of the recreation centre to oversee more adequately and productively. Since TIMP is known as an ecotourism TIMP and marine protection zone, it can be recognised as the capacity of biodiversity assets, particularly for marine life. An evaluation of the willingness to pay (WTP) among visitors can help the managing agencies make decisions on the appropriateness of conservation fees in TIMP. The estimation of WTP can be utilised as a rule to decide a 'Market price' as a conservation charge for the TIMP. Besides that, the protection charge can be utilised as a tool to control the number of visitors' entry

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should there be any negative effects towards the marine resources. This study will represent the estimations of the TIMP zone in terms of financial values.

This research will embrace a Contingent Valuation Method where theoretical situations have been shown to the respondents. A set of payment card has been made accessible for the respondents to look over. Therefore, the discoveries could give the overseeing authority a progression of administration alternatives and how much the effect would be towards TIMP, even before the charges occurred. Other than that, in view of the attributes of visits, it will enable the administration to stop enhancing the nature of overseeing TIMP particularly to control the tourists' action on attributes of visit and satisfaction level. Moreover, this research will provide data on tourists' socio-demographic background and satisfaction in TIMP. This data can be utilised by the Department of Marine Park to promote visitors to TIMP.

The discoveries of this study could enable the park administration to enhance their services and facilities in the TIMP. This will benefit the visitors especially in terms of the value of experience and level of satisfaction from their visit as well as upgrade their level of awareness by protecting natural resources. This study also gives advantages to the local community. Efficient and proper administration will increase the number of visitors and thus, create more job opportunities to the local community.

1.7 Summary

This chapter has described and overview the study area which is Tioman Island Marine Park. This park is chosen as the study area in order to determine the entrance fee in Tioman Island Marine Park. Tioman Island Marine Park is chosen because of its uniqueness of being most diverse and healthiest reef in the peninsula. and. The second factor is that the coral reef areas of TIMP are located within the 'coral triangle', it is also located in a region that has been classified as covering the uppermost diversity of coral species everywhere in the world that will attract tourist. This increasing rate of local tourist will bring revenue to the park which could help in funding for better management and conservation of Tioman Island Marine Park.

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