# DETERMINANTS OF TOURIST BEHAVIOUR TOWARDS THE MARINE ENVIRONMENT IN PERHENTIAN ISLAND, TERENGGANU, MALAYSIA

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by

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## ABSTRAK

Peningkatan aktiviti pembangunan dan pelancongan di pulau-pulau kecil telah menyebabkan kemusnahan terhadap persekitaran marin pulau. Tingkah laku pelancong telah dikenalpasti sebagai faktor yang mempengaruhi pemuliharaan persekitaran marin di pulau-pulau kecil. Kajian ini menyiasat kesan langsung dan tidak langsung dari penentu yang berkaitan dengan tingkah laku pelancong ke arah persekitaran laut. Faktor sosio-psikologi seperti pengetahuan alam sekitar, sikap alam sekitar, norma peribadi, dan norma subjektif telah dikenalpasti sebagai penentu tingkah laku pelancong. Jurang pengetahuan yang dikenal pasti adalah kombinasi semua penentu dalam satu kajian berkenaan tingkah laku pelancong Selain itu, pengetahuan alam sekitar dikenalpasti sebagai *antecedent* kepada penentu. Sebaliknya, norma peribadi diiktiraf sebagai mediator antara penentu dan tingkah laku pelancong. Faktor sosio-demografi seperti jantina, umur, tahap pendidikan, dan kekerapan pelancong diuji perbezaan di antara penentu dan tingkah laku pelancong. Bagi menjawab soalan penyelidikan, kajian rentas *snapshot* telah dijalankan untuk mendapatkan data kuantitatif. Soal selidik yang ditadbir sendiri yang disesuaikan dengan pelbagai kajian tingkah laku telah digunakan untuk pengumpulan data di Pulau Perhentian, Terengganu, Malaysia. Persampelan berstrata digunakan untuk memastikan kedua-dua pelancong tempatan dan asing (mengikut jantina) diwakili dalam populasi sampel. Instrumen direka untuk mengukur pengetahuan alam sekitar, sikap alam sekitar, norma peribadi, norma subjektif, dan tingkah laku pelancong terhadap alam sekitar marin. Sikap alam sekitar terdiri daripada dua kosntruk, iaitu

kebimbangan alam sekitar dan komitmen verbal. Soal selidik diedarkan kepada 295 responden dan data yang dikumpul dianalisis dengan menggunakan Structural Equation Modelling (SEM) dalam AMOS. Dapatan kajian menunjukkan bahawa sikap alam sekitar dan norma subjektif positif mempengaruhi tingkah laku pelancong secara langsung. Selain itu, didapati juga bahawa pengetahuan alam sekitar *antecedent* terhadap sikap alam sekitar dan norma subjektif. Selain itu, norma peribadi sepenuhnya mengantara pengetahuan alam sekitar dalam mempengaruhi tingkah laku pelancong terhadap alam sekitar marin. Hasil kajian ini menunjukkan bahawa pengetahuan alam sekitar merupakan faktor penting dalam menentukan tingkah laku pelancong. Oleh itu, pengetahuan tentang alam sekitar perlu ditingkatkan di kalangan pelancong menggunakan langkah-langkah pendidikan dan penyertaan.

# DETERMINANTS OF TOURIST BEHAVIOUR TOWARDS THE MARINE ENVIRONMENT IN PERHENTIAN ISLAND, TERENGGANU, MALAYSIA

## ABSTRACT

An increase in development and tourism activities in small islands have caused degradation to the islands' marine environment. Tourists' behaviour has been identified as a factor that influences conservation of marine environment in small islands. This study investigates the direct and indirect effects of determinants related to tourist behaviour towards the marine environment. Socio-psychological factors such as environmental knowledge, Environmental Attitude, Personal Norm, and Subjective Norm were identified as determinants of tourist behaviour. The gap in knowledge that has been identified is the combination all these determinants in study in one study related tourist behaviour. Besides that, Environmental Knowledge was identified as an antecedent to determinants. On the other hand, Personal Norm was recognized as a mediator between determinants and tourist behaviour. Socio-demographic factors such as gender, age, education level, and travelling frequency were tested as factors that significantly differs between determinants and tourist behavior. To address the research questions, a snapshot cross-sectional study was conducted to obtain quantitative data. A self-administered questionnaire that was adapted from various behavioural studies was used for data collection in Perhentian Island, Terengganu, Malaysia. Stratified sampling was utilised to ensure both local and foreign tourists (by gender) were represented in the sampled population. An instrument was designed to measure environmental knowledge, Environmental Attitude, Personal Norm, Subjective Norm, and tourist behaviour towards the marine environment. Environmental Attitude comprised of two constructs, namely environmental concern

and verbal commitment. The questionnaires were distributed to 295 respondents and collected data were analysed using Structural Equation Modelling (SEM) in AMOS. The findings indicate that Environmental Attitude and Subjective Norm positively influences tourists' behaviour in a direct manner. Moreover, Environmental Knowledge was found to be an antecedent to Environmental Attitude and Subjective Norm. Other than that, Personal Norm fully mediates Environmental Knowledge in influencing tourists' Behaviour towards the marine environment. The results of this study implicate that Environmental Knowledge is an important factor in determining tourist behaviour. Hence, knowledge on the environment should be increased among tourists using educational and participative measures.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Introduction

This chapter begins with the background of this study, which introduces the situation of tourism in Malaysia, the significance of small island tourism, and the effects of tourist behaviour towards the marine environment. Then, the problem statement section discusses the studies relating to the contribution of tourist behaviour towards the degradation of the marine environment in Malaysia along with a specific description of Perhentian Island. The problem statement serves as a guideline in determining the objectives and research questions for this study. Besides that, this chapter also gives a general overview of the methodology for this study. It is then followed by the significance of the study and operational definitions. This chapter ends with a brief summarization of the overall organization of this thesis according to the respective chapters.

## 1.2 Background of the Study

The tourism industry is one of the major contributors in the Malaysian service industry. The tourism industry has also been gradually expanding. In 2016, the country received 26.8 million tourists with the total profit of MYR 82.1 billion (Tourism Malaysia, 2017). The total profit of tourism is expected to increase by 4.1% per annum from 2015 to 2025. The total profit that might be projected in 2025 is MYR95.9 billion, with an approximate profit of 2 billion per week. The total contribution of the tourism industry to the Gross Domestic Product (GDP) for 2015 was 5.6% (World Travel and Tourism Council, 2016). This proves that the tourism industry plays a vital part in

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increasing foreign exchange contribution, job opportunities, and foreign investments in new tourism facilities  (Bhattarcharya and Sankar, 2000; Lee and Chang, 2008; Lee and Othman, 2010; Lissner 2016).

Small island tourism has also become a very significant part of the tourism industry. A small island has the size of 10,000 $km^2$ and below with a population that is equivalent or less than half million.  It usually provides various activities for tourists such as beach tourism, diving, recreational boating, cruises, snorkelling, recreational and deep sea fishing (Islam et al., 2013; Yacob et al., 2012). The importance of island tourism is overwhelming that it is considered the leading contributor in generating certain country's economy (Berdach and Yeo, 2013; Gore, 2007; Sobhee, 2008,). The fixed physical assets of the island such as fine beaches, moderate climate, tropical forests, coral reefs, and colourful fish species offer tourists an escapism retreat from the stresses of modern life (Salim and Mohd Tahir, 2012). It is believed that countries which are blessed with these natural assets are able to offer job and business opportunities to the local community. (Jaafar and Maideen, 2012; Lee, 2010). The island's unique characteristics such as its isolation, distinctiveness and manageability characteristics make it appealing to the tourism industry (Salim and Mohd Tahir, 2012).

Island tourism has proven to have an importance to the well-being of a country's economic and social aspects. However, it is difficult to ignore the negative consequences that are caused by island tourism, especially towards the environment of the marine environment (Fisher et al., 2008; Solstrand and Gressnes, 2014). Marine environment consists of mainly the ocean and coastal areas surrounding the ocean. In addition, the marine environment also would include the coral reef and the fisheries

residing in the oceans (Wen and Lu, 2013). The rapid effects towards the marine environment are largely contributed by tourist behaviours during tourism actvities (Harnik et al., 2012). Tourist behaviours are defined as any actions by a tourist that might have a positive or negative impact on the environment of a tourism destination (Lee et al., 2013). Negative tourist behaviours have contributed to the marine environment degradation of coral reefs, coastal and ocean (Schumann et al., 2013; Yacob et al., 2012).

Coral reefs are one of the marine environment that has received critical attention due to the visible effects of negative tourist behaviours (Gladstone et al., 2012; Hyde et al., 2013; Needham et al., 2011; Thapa, 2010). Negative tourist behaviours can either directly or indirectly affect coral reefs (Reopanichkul, 2009). Tourist behaviours that can directly effect coral reefs include walking on coral reef (Gladstone et al., 2012; Needham et al., 2011,), using kneepad and gloves (Thapa, 2010) along with coral picking (Hyde et al., 2013) during snorkelling and diving. Some of the indirect negative behaviours that can seriously damage the coral reefs are littering, reef walking at low tide and excessive water usage (Farr et al. 2014).

The coastal areas of the marine environment in the islands have also received significant impacts from negative tourist behaviours. Silva and Ghilardi-Lopez (2012) has identified that one of the impacts on coastal areas by negative tourist behaviour include improper disposal of solid waste that attracts animals, fungi, and bacteria which leave an uncomfortable smell in the surrounding areas. The use of off-road vehicles by tourists in coastal areas has also been identified to have negative effects. The coastal areas are damaged by substances such oil and hydrocarbon that are released from the use of motor vehicles. It is also known that off-road vehicles could

have vast effects on fauna, vegetation, and sensitive areas surrounding coastal areas (McLachlan et al., 2013; Silva and Ghilardi-Lopez, 2012). Apart from that, other negative tourist behaviours around coastal areas include graffiti and vandalism on beach rocks, the intrusion of sensitive areas are such mangrove, and also illegal and excessive fishing (Riper et al., 2013). Another example of the obvious impacts of negative tourist behavior includes improper feeding of animal which can cause them to be poisoned to their death (Ku and Chen, 2013). In addition, negative tourist behaviours of collecting corals, shellfish, and other wildlife could lead to the imbalance of the ecosystem in the marine environment (Vousdoukas et al., 2009).

Negative tourist behaviour that can effect the ocean in marine environment include waste disposal during recreational boating and other activities. Excessive and dynamite blasting of fisheries by tourists also contributes to the decrease in water quality of the ocean. Negative tourist behaviours also contributes to decrease in the abundance of fisheries in the ocean. The abundance of fisheries is directly decreased by illegal or fishing activities by tourists in non-reserved areas. The indirect effects of tourist behaviour towards the fisheries include irresponsible disposal of solid waste into the water and pollution arising from recreational boating. The negative effects could reduce the dissolved oxygen in the water, which would reduce the survival chances of fisheries (Byron et al., 2011; de Jonge et al., 2012; Lissner, 2016; Silva and Ghilardi, 2012).

The small islands in Malaysia are globally known for their rich marine environment, water-based and ecotourism activities. This development has transformed the islanders from fishermen to travel boat entrepreneurs that provide recreational boating and other water activities, including diving, snorkelling, and

recreational fishing. The local community has also chosen to establish small businesses related to tourism, which produce significant income (Lee, 2010; Hanafiah et al. 2015). The small island tourism industry in Malaysia is believed to attract tourists from Europe, North America, Australia, and New Zealand. The small islands in Malaysia compromise of unoccupied islands and islands which are the centre of administration of state or owned by the federal territory. Overall, there are 25 small islands that are considered as popular destinations which gain valuable income for the tourism industry (Ho et al., 2013). The unique characteristics of small islands compromise of beautiful beaches and coral reefs, limited population, water-based activities, duty-free shopping, natural mangrove parks, variety of wildlife, and ecotourism activities that play a major part in making them a popular destination (Sapari et al., 2012; Othman and Mohd Rosli, 2011). However, the intense and increased velocity of development of the small island tourism in Malaysia has had an adverse impact on its marine environment (Jaafar and Maideen, 2012). These adverse impacts on the marine environment is mainly caused by negative tourist behaviours.

Hyde et al. (2013) states that negative tourist behaviours such as reef pulling has caused the coral reefs in Malaysia to be damages to extents of 85% of its overall coral reefs. The excessive number of tourists engaging in negative behaviors during snorkelling and diving have also contributed to the damage in coral reefs. The improper tourist behaviour of pulling out reefs during diving and snorkelling activities has been identified as the main reason for coral damage in the Malaysian islands, including Perhentian, Tioman, and Pangkor (Ibrahim and Ahmad, 2008; Lee and Othman, 2010; Praveena et al., 2010).

Coastal areas in the marine environment of Malaysian small islands are also facing negative tourist behaviours. The most common negative tourist behaviours in

coastal areas include open burning, use of motorised vehicle in addition to excessive littering. Activities such as open burning and the use of motored vehicles could produce noise and air pollution that might disturb the wildlife in the forest. Moreover, the collection of seashells by tourists is feared to have damage to the aesthetics in coastal areas (Aznie et al., 2011; Hanafiah et al., 2015).

Excessive littering by tourists has deeply reduced the quality of the water in the small islands of Malaysia. Oil spillage and leakage from recreational activities further pollute the already existing contamination (Abdullah et al., 2012; Lee and Othman, 2010; Lissner, 2015). The worst case scenario of this damage is severe contamination to the ecological attributes that may need a long time for recovery or lead to extinction (Ibrahim & Ahmad, 2008). In addition, negative tourist behaviours have also affected the abundance of fisheries in the seawater of Perhentian, Pangkor and Tioman Island. Fishing was once a source of living for the local communities, but it has turned into a tourist recreation sport (Lee and Othman, 2010)

Overfishing can decrease the marine fishing spots in Malaysia for the last ten years. If fishing is done more than the capacity of the fisheries, the marine environment will be damaged. Teh and Teh (2014) claims that overexploitation of fisheries, especially by tourists has reached a state beyond sustainable levels. The Malaysian government has already introduced boat fishing to handle this problem as well as trying to rehabilitate by suggesting different strategies. Marine Parks Department, Malaysia has made parks to regulate the marine environment effectively. The Marine Protected Areas (MPA) would protect and manage the fish nursery areas for the survival of kinds of fish kinds. In fact, these nursing areas are gazetted as shut fishing areas. MPAs are employed to handle the overfishing matter of the fisheries for both cost effective and biological terms (Hyde et al., 2013). In Malaysia, MPAs have

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constructed several places to accommodate the fishing boats in Malaysia by promoting conservation, entertainment, education, research, as well as management of the seashore marine resources.

The marine environment is degraded by the improper and irresponsible behaviours of tourists to fulfil their own needs in terms of physical, emotion, comfort, family and organization. It is important for the tourists to display positive behaviours towards the environment when fulfilling their needs. This will ensure that it would bring positive effects in conserving the environment and promote sustainability (Krajhanzl, 2010; Stern, 2000). The different aspects of physical and aesthetic environment could provide various fulfillment of different needs in the marine environment context. However, individuals have to be directly involved with the environment to display positive behaviours in ensuring the sustainability of the marine environment (Thapa, 2010; Wen and Lu, 2013, Halkos and Matsiori and Matsiori, 2017).

There are two major aspects that can determine the display of responsible behaviour towards the marine environment, which are socio-psychological and socio-demographic (Ong and Musa, 2011). Socio-psychological seeks to understand and explain the way people think, feel, and behave that are influenced by the presence of others. The presence of others can be felt directly, imagined, or implied. The socio-psychological determinants that were commonly investigated in previous studies are Environmental Knowledge (Eleiton et al., 2015; Thapa et al., 2005), Environmental Attitude (Lee and Yang, 2013; Luksenburg and Parsons, 2014; Thapa, 2010; Solstrand and Gressnes, 2014), Personal Norm (Ku and Chen, 2013; Lee et al., 2013; Ong and

Musa et al., 2011) and Subjective Norm (Dolnicar, 2010; Marchioni, 2009, Needham et al., 2011; Ong and Musa et al., 2011).

Environmental Knowledge can be defined as the combination of all the cognitive understanding known in the environment and the problems that are associated with it (Varisli, 2009). Environmental Knowledge is an important factor in determining tourist behaviour as it is the core in forming the belief and attitude towards the environment (Oreg, 2006; Steg and de Groot, 2010). Environmental Attitude consist of conative property that translates into persistent actions of an individual. Environmental Attitude would shape the pattern of expression of an individual towards an object that requires their attention. The ego of an individual would serve as driving for filtering internal and external doubts (Halkos and Matsiori, 2017; Eleiton et al., 2015).

Subjective Norm refers to the norm in a group taking into account the prevalence of the individual that would justify the behavior received in a given set (Lindenberg and Steg, 2013). Individuals who are actively involved in in the group will show an improvement in reinforcing the behavior (Kormos et al., 2014). The Personal Norm is a reflection in the individual itself that is influenced by the cognitive and affective aspects. The value of an individual plays an important role in the outpouring of Personal Norms. In other words, the Personal Norm is an internal voice that supports or isolates behavior (Hunecke and Matthies, 2015).

Socio-demographic aspect in the context of behavioural study can be seen as an individuals' social and demographic combination which directly prohibit or encourage a behaviour (Horelli, 2002). Socio-demographic aspect is believed to serve as proxy of what an individual is personally capable. It would then reflect the extent

of an individual's engagement in behaviours based on their knowledge and skills (Mobley et al., 2009). The sociodemographic aspect that has been identified in this this commonly investigated in previous studies include gender, age, educational level, travelling frequency and income level (Luksenburg and Parsons, 2014; Marchioni, 2009; Rusli et al., 2010; Salmond, 2010 Solstrand and Gressnes, 2014; Yacob et al., 2012).

From a theoretical point of view, the previous studies applied Theory of Reasoned Action or Theory of Planned Behaviour along in relating the determinants with tourist behaviour towards the marine environment (Halkos and Matsiori, 2015; Marchioni, 2009; Poudel and Nyaupane, 2016; Ong and Musa, 2011; Thapa, 2010). In contrast, to interrelate the determinants of tourist Behaviour towards the marine environment, there are four theories and models that were considered in this study. These include Theory of Reasoned Action (TRA), Knowledge-Attitude-Behaviour Model (KAB), Norm Activation Theory (NAT) and Theory of Social Learning (TSL). TRA assumes that behavioural intention is determined by the desire of the individual to perform which is backed by two factors which include attitude and Subjective Norm (McDonald, 2014). However, as this study aims to investigate the effects of determinants directly towards behaviour, KAB is applied. KAB instigates that knowledge acts an important factor that determines behaviour and antecedes attitude. KAB also denotes that attitude effects behaviour directly rather than via behavioural intention (Chen et al., 2014).

In order to relate, Personal Norm as a mediator between Subjective Norm and tourist behaviour, NAT was considered. NAT implies that a behaviour is explained benefit and the social value that the behaviour gives to others (Schultz et al., 2014).

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Theory of social learning allows the remaining determinants to be interrelated. TSL denotes that knowledge as personal factor and Subjective Norm as an external factor is directly related to behaviour. TSL also instigates that knowledge and attitude are mediated by Personal Norm in influencing behaviour (Allen, 2015; Sawitri et al, 2015). As the determinants of tourist behaviours were identified and theories interrelating these determinants were recognized, Perhentian Island where the study was conducted is explained in detail.

## 1.3    Perhentian Island

Perhentian Island is located at the South China Sea, which is 21 km from the East Coast state in Malaysia, called Terengganu. The islands consist of two main islands, which are Perhentian Besar (867 hectres) and Perhentian Kecil (524 hectres). There are also several small islands located in Perhentian Island, namely Susu Dara, Seringgi, and Rawa. The islands are blessed with rich and diverse species of coral reefs of approximately 127 types of fish. Figure 1.1 shows the map of Perhentian Island.



**Figure 1.1: Map of Perhentian Island**

Source : Marine Parks Department of Malaysia (2016)

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With reference to Figure 3.2 above, Perhentian Island has a total of 17 scuba diving spots, 23 snorkelling spots, but only three swimming areas. This reveals that the marine environment has a very important role for the tourism industry in Perhentian Island. Furthermore, Perhentian Island is perceived to have evolved into a major tourist attraction with world class facilities and scuba diving offerings (Aznie, 2011; Mapjabil et al., 2012). During the peak season, that is, from July to October, it is believed that the hotels and chalets in the islands, especially Perhentian Kecil, have 100% occupancy rate (Hamzah and Hampton, 2011; Islam et al., 2013; Salmond, 2010). Table 1.1 shows the number of tourist arrivals to Perhentian Island from the year 2011 to 2015.

**Table 1.1: Tourist Arrival to Perhentian Island from 2011 to 2015**

| Year | Local | Foreign | Total |
|------|-------|---------|-------|
| 2011 | 74,499 | 40,573 | 115,072 |
| 2012 | 36,976 | 66,529 | 103,505 |
| 2013 | 62,121 | 72,559 | 134,680 |
| 2014 | 101,524 | 51,527 | 153,051 |
| 2015 | 96,370 | 55,988 | 152,358 |

Source : Department of Marine Park, Malaysia (2016)

The number of tourist arrivals to Perhentian Island shows a steady increase of 33% from 2011 to 2014, although there was a decrease in the number in 2012. The composition of local and foreign tourists has changed from excess of foreign tourists to excess of local tourists. In the year 2014, there was an excess of 49,997 local tourists against foreign tourists. The trend continues in the year 2015 for the excess of 40,482 local tourists against foreign tourists. The marine environment of Perhentian Island is regarded as very valuable to the tourism industry, that it has been sanctioned by the Malaysian government as a marine park. Marine park is a protected area of sea zoned that is one or two nautical miles from the shore at lowest low tide (Hyde, 2013). Marine parks are protected under the Marine Parks Order of 1994 of the Fisheries Act.

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Under this Act, the marine environment of Perhentian Island is constantly monitored under the administration of Department of Marine Parks, Malaysia. Tourists would be charged a conservation fee of RM5 for adults and RM3 for students, children (above 6 years old), and senior citizens (above 55 years old). These fees are collected to maintain the marine environment of the islands. From the total of 42 marine parks gazetted, Perhentian Island receive a large proportion of tourists compared to the remaining marine parks. In 2014, Perhentian Island alone received 17% of the total tourists (153,051 out of 887,180) to the marine park, while the other 41 marine parks received the remaining percentage of tourists.

The marine environment in Perhentian Island are affected by the impact of tourism activities and tourist behaviour. The need for accommodations in Perhentian Island has increased due to the increasing number of demands by the tourists. The development is immensely rapid that the settlement of local community has been reduced dramatically to one settlement, namely Kampung Pasir Hantu with 2,163 local community (Muhibuddin and Mohamed, 2014). Chan (2009) stated that the environment at Perhentian Island has greatly been affected by the immense growth of the tourism industry. Table 3.2 shows the summary of the observation and assessments in both islands (four zones) regarding indicators of waste management, water quality, dive and snorkelling sites, sewage management, beach assessment, crowdedness, and also distribution of facilities available in the island

**Table 1.2: Summary of Ground Assessment for Perhentian Besar and Kecil**

| | Zone and Number of Observed Indicators | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | A (Long Beach) 22 indicators | | B (Kg Pasir Hantu) 21 indicators | | C (Coral Bay) 21 indicators | | D (Perhentian Besar) 21 indicators | |
| **Colour Description of Indicators** | $F$ | % | $f$ | % | $F$ | % | $f$ | % |
| Green Zone (80-100%) | 4 | 18 | 3 | 14 | 2 | 10 | 2 | 10 |
| Yellow Zone (41-79%) | 8 | 36 | 7 | 33 | 6 | 28 | 7 | 33 |
| Red Zone (0-40%) | 10 | 46 | 11 | 53 | 13 | 62 | 12 | 57 |

Source : Mohamed (2015)

Referring to the Table 1.2, the zone where the tourists stay and conduct their activities are Zone A, C, and D, whereas Zone B is the residential settlement of Perhentian Island. A large percentage of the indicators (45-62%) for Zone A, C, and D fall in the red zone, where the condition or qualities are very poor, the availability/quantity for positive indicators are absent, and the availability/quantity for negative indicators are abundance. This indicates that tourism acitivies and tourist behaviour are clearly damaging the environment in Perhentian Island.

The marine environment in Perhentian Island was scrutinized by a local newspaper, The Star, on October1st,2013, which highlighted the serious damage of waters and coral reefs in the islands. The coral reefs are believed to be covered by algae, which reduce their physical and aesthetic values. The number of percentage for the coverage of algae is 221%, which is more than the national average percentage. Regarding this matter, Reef Check Malaysia annually conducts an analysis of coral reef, water, and fisheries. In 2013, they found that the coverage on hard coral reef has been reduced to only 47.18%. There is a decrease of nearly 21%, compared to the

coverage of hard corals in 2007. The damage of coral reefs in Perhentian Island is quite serious as the coral coverage has reduced by nearly 50% in the time span of nearly ten years (Hyde, 2013). The increasing number of tourists and tourist behaviours has been identified as major cause the degradation of the marine environment in Perhentian Island (Chan, 2009).

## 1.4 Problem Statement

The conceptual framework of the current study is designed to predict the determinants of tourist behaviours towards marine environment from two different aspects, which are socio-psychological and sociodemographic. The previous studies have identified various indications that Environmental Knowledge, Environmental Attitude, Subjective Norm and Personal Norm are important in shaping positive tourist behaviour towards the marine environment (Eleiton et al., 2015; Halkos and Matsiori, 2017; Islam et al., 2013; Lee et al., 2013; Lee and Yang, 2013; Ku and Chen, 2013 Luksenburg and Parsons, 2014; Marchioni, 2009; Ong and Musa, 2011; Rusli et al., 2010; Salmond, 2010; Solstrand and Gressnes, 2014; Yacob et al., 2012). However, there is the lack of empirical studies that simultaneously investigate the direct and indirect effects between determinants and tourist behaviour on the marine environment. The proposed framework in this study will include the direct effect of the determinants and the indirect effect of Environmental Knowledge as the antecedent, and Personal Norm as the mediator in predicting tourist behaviour towards the marine environment.

In relation to environmental knowledge, initial studies found that Environmental Knowledge lacked effects towards tourist behavior. (Thapa, 2010). However, recent studies indicate that environmental knowledge, is vital in determining

behaviour (Eleiton et al., 2015). Environmental Knowledge is believed to invoke more awareness which will eventually lead to positive behaviours. Environmental Knowledge also has the ability to encourage positive behaviours and also environmentalism specifically in the marine environment (Berdach and Yeo, 2013). Therefore, Environmental Knowledge is important to ensure that the tourist will reduce behaviours that will be detrimental to the marine environment (Farr et al., 2014; Hyde et al., 2013). Environmental Knowledge also serves as an antecedent of Environmental Attitude which is a major determinant of behaviour (Bradley et al., 2010; Roczen et al., 2013; Aminrad et al., 2010; Harun et al., 2011). Environmental Knowledge helps the formation of attitude in understanding the environment by completing a summary evaluation of objects and groups of objects (Horelli, 2002).

Environmental Attitude specifically is the formation of concern and commitment allows the individual to display either a positive or negative behaviour towards the environment (Cordano et al., 2011; Daudi, 2008; Fernández-Manzanal et al., 2007; Ugulu, 2013). Ong and Musa (2011) believes that attitude is a socio-psychological construct that shows a person's mental status used to structure the way they perceive their environment and provide guidance on how to respond. The lack of Environmental Attitude indicates that there is less concern and commitment towards the preservation of the environment. This will eventually lead to lack of willingness to act or pay for the preservation of the environment (Franzen and Vogl, 2013; Melgar et al., 2013; Plombon, 2011). The reviews of previous studies show that Environmental Knowledge and attitude are consistently considered as vital determinants of behavior towards the marine environment (Cheng and Wu, 2013; Eleiton et al., 2015; Marchioni, 2009; Solstrand and Gressnes, 2014). The current study aims to investigate

both the direct and indirect manner of the relationship between Environmental Knowledge and Environmental Attitude with tourist behaviour towards the marine environment as instigated by the theories applied in the study.

In accordance with Environmental Knowledge and attitude as determinants, both personal and Subjective Norm is believed to help ease the occurrence of a positive behaviour towards the marine environment by increasing the willingness to perform the behaviour (Boon and Quoquab, 2015). The individual's perception towards the behaviour is connected to the society surrounding them, as well as the norms which were inserted in them throughout their life. The individual will need to abide to both personal and Subjective Norm in order to receive acceptance from the society and to enhance his or her self-esteem and sense of pride (Harland et al., 2007; Turaga et al., 2010). Previous studies found that Personal Norm and Subjective Norm have a direct effect on behaviour towards the marine environment (Marchioni, 2009; Ong and Musa, 2011). Besides having a direct effect on tourist Behaviour towards the marine environment, Personal Norm also has a mediating effect between determinants and tourist behaviour towards the marine environment. (Lee et al., 2013).

The socio-demographic variables that will be used in this study to investigate significant difference between the determinants and behaviour towards the marine environment are age, gender, and education. These demographic factors consistently showed in previous studies that they could affect the variables different manners (Luksenburg and Parsons, 2014; Marchioni, 2009; Rusli et al., 2010; Salmond, 2010 Solstrand and Gressnes, 2014; Yacob et al., 2012). However, there aren't any studies conducted on the sociodemographic factor of travelling frequency even though

increase in travelling frequency is believed to have the tendency to increase an individual's concern towards the environment (Schuhmann et al., 2013).

From a theoretical point of view, previous studies on determinants and tourist behaviour towards the marine environment have opted to adapt Theory of Reasoned Action (Halkos and Matsiori, 2017; Marchioni, 2009) or Theory of Planned Behaviour (Lee et al, 2013; Riper et al, 2013). Studies also adapted Norm Activation Theory to interrelate between determinants and behaviour towards the marine environment (Boon and Quoquab, 2015, Ong and Musa, 2011). However, these thoeries only allowed the studies to explain more on the direct effects of determinants towards behaviour rather than the indirect effects. This current study plans to Theory of Reasoned Action and Norm Activation Theory along with Theory of Social Learning (Sawitri et al, 2015) and Knowledge Attitude Behaviour Model (Solstrand and Gressnes, 2014). This allows the study to examine both the directs and indirect effects of tourist behaviour determinants towards marine environment.

Based on the combined theoretical adaptation, the socio-psychological and socio-demographic study of tourist behaviours towards marine environment will be focused on Perhentian Island. This is because there have been vast developments of tourism activities and increase in the number of tourists in Perhentian Island as it offers world class marine activities and attractions (Aznie et al, 2011). The development of facilities and the increase in the number of tourists has been detrimental specifically towards the marine environment (Islam et al, 2013). Tourist behaviours have been identified as a major contributor to the degradation of the marine environment in Perhentian Island (Hamzah and Hampton, 2011; Hyde et al, 2013; Salmond, 2010).

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Hamzah and Hampton (2012) believed that tourists, especially backpackers, are causing serious damage to the corals.

Besides that, the abundance of fisheries is believed to have declined with the extinction of several species. Excessive fishing by tourists is also believed to be a major cause in the decline of fisheries in Perhentian Island (Abdul Rahman and Hashim, 2014). Tourist behaviours in Perhentian Island are believed to be the major cause for the damage to the environment from the local community's perspective (Islam et al., 2013). It is clearly indicated that tourist behaviour towards the marine environment has caused major degradation. In order to enhance positive behaviours of tourists towards the environment, there is a need to identify the determinants of these tourist behaviours towards the marine environment of Perhentian Island.

## 1.5 Objectives of the Study

The main purpose of this study is to outline a model which can interrelates the identified determinants with the tourist behaviour towards the marine environment. This study will also examine the indirect relationship between the identified determinants and tourist behaviour towards the marine environment. In order to accomplish the main purpose of this study, the researcher has listed the following objectives:

1. To investigate environmental knowledge, Environmental Attitude, Subjective Norm, and Personal Norms as the determinants of the tourist behaviour towards the marine environment.

2. To examine the antecedent effect of Environmental Knowledge preceding the determinants and tourist behaviour towards the marine environment.

3. To examine the mediating effects of Personal Norm between the determinants and tourist behaviour towards the marine environment.

4. To examine the significant difference between age, gender education and travelling frequency with the determinants and tourist behaviour on the marine environment.

## 1.6 Research Questions

This study intends to identify the determinants of tourist behaviour towards the marine environment. These determinants include environmental knowledge, Environmental Attitude, Personal Norm, and Subjective Norm. This study will look into both direct and indirect associations between the determinants and tourist behaviour towards the marine environment. Thus, this study intended to answer the following research questions:

1. What are the determinants that could influence positive tourist behaviour towards the marine environment?

2. What is the antecedent effect of Environmental Knowledge preceding the determinants and tourist behaviour towards the marine environment?

3. What are the mediating effects of Personal Norm between the determinants and tourist behaviour towards the marine environment?

4. Is there significant difference between age, gender, education and travelling experience with the determinants and tourist behaviour towards the marine environment?

### 1.7 Methodology

The current study requires quantitative data in order to identify the relationship between the different variables such as the relationships between the environmental knowledge, attitude, Personal Norm and social norm with Behaviour towards the marine environment. Correlation is considered to be practical and valid to analyse the relationships between variables (Bryman, 2012). Besides that, quantitative data also explored the difference of age, gender, education, and income on Behaviour towards the marine environment. This study utilized a questionnaire as the instrument to obtain the quantitative data. The data collection was done on Perhentian Island which is well known tourist attraction rich with a degrading marine environment. Stratified sampling was applied to ensure the representativeness of tourist from different backgrounds. A Structural Equation Modelling analysis was used to perform the modelling of the equation and mediating effect of the determinants and Behaviour towards the marine environment. An independent sample *t*-test will provides a useful analysis for the difference between the variables according to demographic factors.

### 1.8 Scope of the Study

This study will attempt to generalize the Behaviour towards the marine environment of tourists based on the data collected from the marine parks in Perhentian Island, Malaysia. The focus of this study is at Perhentian Island, and the islands have shown several significant effects on the marine environment that are caused by tourist behaviours (Hyde, 2013). Based on the statistics from the Marine Park Department (2016), Perhentian Island have received a large number of foreign tourists from European countries, Australia, and major continents. The will ensure a more accurate generalization of the variables that will be used in this study. The cross sectional nature

of this study means that the data were collected at a certain period of time, which was during a peak period to ensure representativeness of all groups for the samples.

## 1.9 Operational Definitions

The following are the definition of the terms employed in the current study:

- **Marine Environment**: Marine environment can be literally defined as coastal and ocean areas, which include habitats surrounding these areas such as coral reefs and fisheries (Joint Nature Conservation Committee (2016); International Maritime Organization, 2016).

- **Tourist Behaviour towards the Marine Environment:** Tourist Behaviour towards the Marine Environment refers to negative or positive actions taken by a tourist that significantly brings good or bad effects to the marine environment (Lee et al, 2013).

- **Environmental Knowledge:** Environmental Knowledge refers to the understanding regarding physical and ecological system concerning environment-related issues (Daudi, 2008; Harun et al., 2011).

- **Environmental Attitude:**  Environmental Attitude refers to the perception of an individual towards the environment formed by the combination of expression for worldview, concern and commitment towards the environment which is either positive or negative (Norldlund, 2009).

- **Personal Norm:** Personal Norm refers to the personal moral obligation of an individual that invokes his or her behaviours towards the environment. (Hunecke and Matthies, 2015; Steg and de Groot, 2010).

- **Subjective Norm:** Subjective Norm refers to the perception of an individual regarding the societal perceptions in  the form of parents, friends neighbours,

partners and educators who can encourage an individual to behave to a behaviour (Nigbur et al, 2010).

## 1.10    Significance of the Study

This study will look into the determinants of behaviour towards the marine environments that will help tourism planners in making their decision. Tourism planners will be able to plan by enhancing the determinants to ensure the preservation of the environment. This study could serve as a turning point to the local council and tourism ministry in incorporating Environmental Knowledge into the tourism industry. Environmental Knowledge could be incorporated into tourism in a simple way, such as giving environmental briefings to tourists (Ku and Chen, 2013; Majpabil, 2012).

The findings of this study could also be used by the education ministry by adapting the components of Environmental Knowledge and attitude into the current education curriculum. The preservation of the environment will be able to help sustain the current and future tourists' satisfaction towards the environment. The satisfaction that is attained from the satisfaction towards the environment is believed to be more significant than economic or social satisfaction (Deng and Bender, 2007; Yacob et al., 2012). A higher satisfaction towards the natural environment could indirectly induce greater loyalty from the tourists towards a destination (Siri, 2009).

This study could also help by contributing to the establishment of environmental compensation in the form of willingness to pay, and this action could restrict the number of tourists, hence reducing overcrowding and intrusion to the nature (Nuva et al., 2009; Wang and Jia, 2012). The attitude and behaviour of tourists towards the environment would show some significant change due to the financial

compensation. If the study able to prove that tourist has a positive relationship between attitude and behaviour, the chances of increasing willingness to pay is higher. The tourists would be more responsible and attentive towards the attributes of the environment, hence reducing the cost of maintenance for local councils and the marine department  (Rusli et al, 2009).

From, the theoretical point of view, this study will combine four different theories which include Theory of Social Learning, Theory of Reasoned Action, Knowledge-Attitude-Behaviour Model and Norm Activation Theory. Theory of Reasoned Action and Norm Activation Theory are, the more commonly used theories in tourist behavioural study (Boon and Quoquab, 2015; Halkos and Matsiori, 2017; Marchioni, 2009; Ong and Musa, 2011). This study will be able to contribute from a different theoretical perspective, when Knowledge-Attitude-Behaviour Model and Theory of Social Learning is included.

## 1.11   Structure of Thesis

The present study consists of five chapters, and the following is the structure of the study:

**Chapter One** introduces the impacts of tourism on the marine environment in the background of the study and proceeds with the problem statement. This chapter then contains objectives of the study, the research questions and the significance of the study. This chapter also includes a brief methodology, operational definitions and scope of the study.

**Chapter Two** presents the detailed literature review related to the basic concepts of environmental knowledge, attitude, Subjective Norm, Personal Norm, and behaviour.

This chapter also presents a detailed review of the theoretical basis that will be adapted in this study.

**Chapter Three** describes the research methodology, the research design, the study setting, population, sampling, data collection tool and procedure, operationalization of the research variables, statistical method for data analysis, pilot study, and finally, the procedure in preparing and interpreting the data for analysis.

**Chapter Four** discusses the usage of statistical tools such mean analysis, correlation test, and Structural Equation Modelling to justify the variables as the determinants. Multi - group comparisons were conducted to test the difference according to socio-demographics.

**Chapter Five** discusses the findings that were obtained according data analysis based literature that reviewed.

**Chapter Six** presents the discussions and conclusions of the study. Besides that, this chapter consists of theoretical and practical implications, limitations, strengths, and suggestions for future research.

**Conclusion**

Overall, this chapter briefly described the background of this study, which includes the current status of the physical and condition of the marine environment. Then, the problem statement is discussed in relation to the importance of tourist behaviour in improving the condition of the marine environment. The common determinants of tourist behaviours were also identified. Besides that, this chapter also discussed both theoretical and conceptual manner that are used to conduct this study. The significance of this study towards the various stakeholders was also briefly discussed. A brief