

Malaysia Island Development At The Marine Park: Impact To The Coral Reef

**Muhamad Ferdhaus Sazali*, Mohd Rezza Petra Azlan and
Badaruddin Mohamed**

Sustainable Tourism Research Cluster, Universiti Sains Malaysia, Penang,
MALAYSIA

Island tourism is one of the fastest growth sectors in Malaysia. Islands in Malaysia are famous around the globe with its beautiful nature, culture and sparkling blue seawater. Malaysia boasts some of the most beautiful islands. An amazing number of these natural treasures lay nestled in tranquil bays and coves. Beneath the aquamarine waters lies a fascinating world of coral and marine life waiting to be discovered. Island development in Malaysia started to be developing tremendously due to the high number of tourist arrival to the island. Many hotel, resort and chalet had been built by the investor and the government agencies. Natural areas were explored when tourism development had been carried out. These physical developments come with tourism activities which led to the some impacts and challenges to the coral reef. The main objective of this paper is to examine the environmental impact of island development in Malaysia focus on the coral reef and to find which activities of development affecting coral communities. This preliminary study had been conducted by collecting all the possible secondary data from various sources like Department of Marine Park, Department of Survey and Mapping Malaysia (JUPEM) and Ministry of Tourism Malaysia. This pilot study is crucial for first step of conservation action and can benefits all parties in tourism sector, from hosts to tourists, authority body, researchers and many more.

Key words: island tourism, development, impact, environment, Malaysia

Introduction

According to the Department of Survey and Mapping, Malaysia, there are a total of 878 islands and 510 offshore geographical features in Malaysia (JUPEM, 2011). Tourism developments on the island are influenced by various factors. It depends on the size of the island, resources, physical character, land uses, policies and strategies by the authorities. The increased number of visitors has lead to the tremendous island tourism development and human/ tourists activities. The uncontrolled activity of tourism development and increasing number of tourists' arrival to the island are the main reasons of negative impacts on the coral reefs. Some of the islands in Malaysia

*Email: muhamad.ferdhaus@gmail.com

are gazetted as Marine Park. This is because of the advantage of the nature that the marine parks have compared to the other islands.

Marine Park in Malaysia

A Marine Park is defined as a sea area zoned area formed as a sanctuary for the protection of marine ecosystems especially coral reef and its associated flora and fauna, like the sea grass bed, mangrove and the seashore (Hiew, 2000). There are about 42 Island in Malaysia gazetted as Marine Park under the jurisdiction of Department of Marine Park Malaysia, Ministry of Natural Resources and Environmental.

Marine Park locations in Malaysia

Table 1: Malaysia's 42 islands gazetted as Marine Parks

State	Gazetted Marine Park	State	Gazetted Marine Park
Kedah	Payar Island Kaca Island Lembu Island Segantang Island	Johor	Goal Island Harimau Island Mensirip Island Hujung Island Tengah Island Besar Island Rawa Island Tinggi Island Mentinggi Island Sibu Island Sibu Hujung Island Aur Island Pemanggil Island
Terengganu	Perhentian Kecil Island Perhentian Besar Island Susu Dara Island Lang Tengah Island Redang Island Lima Island Ekor Tebu Island Pinang Island Yu Kecil Island Yu Besar Island Kapas Island Tenggol Island Nyireh Island	Pahang	Chebeh Island Seri Buat Island Sembilang Island Tioman Island Tulai Island Labas Island Tokong Bara Island Gut Island Sepoi Island
W.P Labuan	Karuman Island Rusukan Besar Island Rusukan Kecil Island		

Source: Department of Marine Park, 2012

Conservation Charge

Visitors to Marine Park of Malaysia are required to pay Conservation Charge. This is consistent with Fee Act 1951, Fee Order (Marine Park Malaysia) 2003. All Conservation Charge collection will be credited in Marine Park and Marine Reserve Trust Fund. The Trust Fund is used for management purposes of the Marine Park Centres and to provide basic facilities for the tourists at the Marine Park Centres.

Number of Visitors to the Marine Park from year 2001 to 2011

Table 2: Number of Tourist Arrival

Year	Type of visitor	Kedah		Terengganu		Pahang		Johor		Total	Grand Total
2000	Local	19,944	106,780	43,390	52,634	72,383	200,589	44,824	63,226	180,541	423,229
	Foreigner	86,836		9,244		128,206		18,402		242,688	
2001	Local	38,027	127,541	65,539	73,580	127,675	243,052	27,963	39,948	259,204	484,121
	Foreigner	89,514		8,041		115,377		11,985		224,917	
2002	Local	56,259	133,775	56,263	64,304	127,675	228,600	27,235	38,908	267,432	465,587
	Foreigner	77,516		8,041		100,925		11,673		198,155	
2003	Local	44,291	114,684	71,654	79,217	128,676	172,787	10,016	14,384	254,637	381,072
	Foreigner	70,393		7,563		44,111		4,368		126,435	
2004	Local	36,282	135,272	111,225	142,476	184,238	249,025	24,444	33,089	356,189	559,862
	Foreigner	98,990		31,251		64,787		8,645		203,673	
2005	Local	19,607	94,099	98,863	123,159	77,570	167,761	32,440	44,861	228,480	429,880
	Foreigner	74,492		24,296		90,191		12,421		201,400	
2006	Local	26,043	112,648	93,546	135,098	104,602	215,936	41,210	56,333	265,401	520,015
	Foreigner	86,605		41,552		111,334		15,123		254,614	
2007	Local	24,580	110,629	112,844	151,397	73,688	149,000	51,558	66,656	262,670	477,682
	Foreigner	86,049		38,553		75,312		15,098		215,012	
2008	Local	23,298	96,071	129,532	151,824	124,673	191,929	41,199	68,664	318,702	508,488
	Foreigner	72,773		22,292		67,256		27,465		189,786	
2009	Local	25,454	102,866	99,434	170,126	105,867	194,392	38,025	63,374	268,780	530,758
	Foreigner	77,412		70,692		88,525		25,349		261,978	
2010	Local	26,429	96,097	130,174	216,404	170,580	233,923	35,839	59,731	363,022	606,155
	Foreigner	69,668		86,230		63,343		23,892		243,133	
2012	Local	25,410	97,572	109,331	207,709	121,660	212,680	40,185	66,973	296,474	584,934
	Foreigner	72,162		98,378		91,020		26,788		288,700	
Grand Total		1,328,034		1,567,928		2,459,674		616,147		5,675,549	5,971,783

Source: Department of Marine Park, 2012

The increasing number of visitors to Malaysia's marine parks indicates that there is a growing trend in recreation related to coral reefs and that marine ecosystems are prone to mounting anthropogenic stress (Teh and Cabanban, 2007). Negative impact from tourism occurs when the level of visitor use is greater than the environment's ability to cope with this use within the marine parks' limits of acceptable change or carrying capacity (Hardin, 1977).

Coral Reefs

Coral reefs are underwater structures made from calcium carbonate secreted by corals. Coral reefs are colonies of tiny living animals found in marine waters that contain few nutrients. Most coral reefs are built from stony corals, which in turn consist of polyps that cluster in groups. The polyps are like tiny sea anemones, to which they are closely related. Unlike sea anemones, coral polyps secrete hard carbonate

exoskeletons which support and protect their bodies. Reefs grow best in warm, shallow, clear, sunny and agitated waters. The coral community is really a system that includes a collection of biological communities, representing one of the most diverse ecosystems in the world. For this reason, coral reefs often are referred to as the "rainforests of the oceans." (EPA, 2012)

Marine Park Act

Marine parks are currently being promoted, developed and managed by the Marine Parks Section in the Ministry of Natural Resources and Environment (NRE). Marine Park Malaysia is endorsed by law under the Section 41- 45 Fishing Acts 1985. This Act is to protect the marine life from any kind of problems related to island development and activities in or surrounding the island. There are other act related to the Marine Park which are Great Barrier Reef Marine Park Act 1975, Establishment of Marine Parks Gazette 2012, Malaysia Marine Parks Act Validation Fi Year 2004 and Act 1951 of Fee Fi Marine Park Malaysia Year 2003. Marine Park in Malaysia is like Pulau Redang and Pulau Perhentian in Terengganu, Islands of Payar in Kedah, the islands of Tioman in Pahang and islands of Pulau Tinggi in Johor. These are among the best Marine Park in Malaysia which are the numbers of tourist coming in are very high and it have best island tourism development.

Island Tourism Development

Development of Tourism Infrastructure

Island in Malaysia especially Marine Park receives impacts through construction of tourism facilities and infrastructure. The tourism developments create an economic spill over not only to the areas of the island but also to the State and the country as well. Government authority under the Eastern Corridor Economic Region (ECER) had planned to boost up the area of Mersing where it will be developed to emerge as an important mainland coastal tourism destination. It will be the gateway to the Mersing group of islands consists of Pulau Besar, Pulau Rawa, Pulau Aur, Pulau Sibul and Pulau Pemanggil (The Star, July 24, 2011). Under the 10th Malaysia Plan, the government allocated RM27 million to upgrade tourism infrastructure like in the Pulau Pangkor, Pulau Sibul and Pulau Duyong. The Government offer many opportunities for local governments to promote their natural environments to visitors or tourists.

Tourism sector has been identified by the Performance Management and Delivery Unit (Pemandu) amongst the twelve National Key Result Areas (NKRAs) which are national priority areas of focus identified under the Government Transformation Programme (GTP). For the island tourism sector, some strategies had been set up to promote island tourism in Malaysia. The strategies set up by the Northern Corridor Economic Region (NCER), Langkawi Island and Penang Island will be enhanced to attract high-end tourist and to increase per capita tourist spending and also the size of tourism industry in the Region. In 2011, Langkawi Tourism Blueprint 2011-2015 had been launched by Prime Minister, YAB Dato Najib Tun Abd Razak. The aim of the blueprint is to be to in the list of 10 islands and destinations of the world's top eco-tourism by 2015. These kinds of strategies are to promote and attracted tourist to the Malaysian Island other than to protect the environment. Eastern Corridor Economic Region (ECER) also promotes island

tourism development. The area of Mersing in Johor State had been development as a gate way to the island like Sibul and Tinggi Island. This will attracted tourist and investor to invest in the area of Mersing.

Tourism Activities

Tourism development on the island is tremendously happened in all islands in Malaysia. It is due to the increase number of tourist coming into Malaysia and spent their holiday on the island. The uncontrolled diving and snorkelling activities at the area will affect and give threat to the marine life especially the coral reef (Tatsuki, Tomoko, Takeshi, 2007). Almost all popular islands in Malaysia like Sibul Island in Johor, Pangkor Island in Perak, Langkawi Island in Kedah, Tioman Island in Pahang, Perhentian Island in Terengganu and Sipadan Island in Sabah face the issues of coral problem effect from scuba and diving activity. The increase number of tourist who loves to scuba diving or snorkelling without proper guidance from the expert also will destroy the nature of coral reef in the Island. Tourism impact may also be one of the major reasons for the decrease of live coral coverage in the Peninsular Malaysia (Badaruddin et al., 2004).

Coral Reef Impact

Effect of Land Development on Coral Health

Sedimentation is one of the main problems resulting from Tourism development. Tourism development and opening of new area on the islands has resulting the sedimentation issues. Resorts and hotel had been built on the islands to cater the rising number of tourist. The development of tourism infrastructure and facilities such as roads, airports, golf and marinas can also be linked to over-development activities on the marine parks. For example, development of marinas can cause changes in currents and coastlines indirectly harming the coral reefs.

In term of development activities, various characteristics of the marine parks are not considered by the developers. Some of these islands are in a small, for example Perhentian Island which is only 15 sq km in size and yet is one of the major island ecotourism destinations in Malaysia with the most number of chalets and resorts. Some of the islands have also experienced the mushrooming and growth of small resorts from over the time, especially in Pasir Panjang and Teluk Dalam area in Redang Marine Park. The island development has led to sedimentation impact on the coral reefs. Sedimentation at high concentrations can destroy the coral reef, decrease water visibility and discourages the number snorkelers and divers in the long term to dive or snorkelling in the island or Marine Park.

Over the last decade, 15% of the world's reefs have been lost; a further 30% of reefs are severely threatened. Sadly, we are the main contributors to their decline. The damage to reefs caused by occasional natural phenomena is far outweighed by growing human impacts (Reef Check, 2012).

Concluding Remark

Many of the questions surrounding sustainable tourism are closely associated with uncontrolled, unsustainable and mass tourism growth. In the extremes, tourism has contributes to a wide range of issues and impacts, many of which seem insignificant

but in the long run these insignificant impacts can expanded into significant and out of control impacts. Loss of biodiversity, loss of certain vegetation species, pollution and a sense of crowding and noise contribute to ill feelings towards tourism development. In the nutshell, island tourism in Malaysia will keep on growth parallel with the development of the country. It will still keep on survive due to the high number of demand from the tourist and with continuously support from the government and related tourism agencies. All the impact of the island tourism development needs to be view in the positive way in order to have good practices island tourism. All tourism development in the island need to be develop in a good and proper way follow all the rules and regulation that had been set up by the related agencies. Sustainable development need to be practices in island tourism development in Malaysia.

References

- Badaruddin, M., Yusnita, Y., Abdul, A.H., & Abdullah (2004). *Tourism impact on aquatic ecosystem—a review. p. 496–499. In Proc. KUSTEM 3rd Annual Seminar on Sustainability Science and Management, Kuala Terengganu, Malaysia.*
- Teh, L., Cabanban, A.S. (2007). Planning for sustainable tourism in southern Pulau Banggi: An assessment of biophysical conditions and their implications for future tourism development. *Journal of Environmental Management* 85: 999-1008.
- The Star, July 24, (2011) *MB: Infrastructure projects will boost tourism in Johor.* <http://thestar.com.my/news/story.asp?file=/2011/7/24/nation/9164887&sec=nation>
- Tatsuki Toda, Tomoko Okashita, Takeshi Maekawa, Bin Abdul Adziz Kee Alfian, Mohd Kushairi Mohd Rajuddin, Ryota Nakajima, Wenxi Chen, Kunio T. Takahashi, Bin Haji Ross Othman & Makoto Terazaki (2007). *Community structures of coral reefs around Peninsular Malaysia. Journal of Oceanography* (63), 113-123.
- <http://my.news.yahoo.com/unnamed-islands-gazetted-june-kurup-20110410-221804-187.html>
- http://water.epa.gov/type/oceb/habitat/coral_index.cfm