

Tioman as a Sustainable Tourism Destination



Published by, Reef Check Malaysia

Copyright © 2020, Reef Check Malaysia

This publication may be reproduced for educational or non-profit purposes without special permission from the copyright holders, provided acknowledgement of the source is made. Reef Check Malaysia would appreciate receiving a copy of any publications that use this document as a source.

About Reef Check

Reef Check is the world's largest international coral reef monitoring programme involving volunteer recreational divers and marine scientists. First carried out on a large scale in 1997, it provided the first solid evidence that coral reefs have been damaged on a global scale. The survey raised the awareness of scientists, governments, politicians and the general public about the value of coral reefs, threats to their health and solutions to coral reef problems. Reef Check is now active in over 95 countries and territories throughout the world.

About Reef Check Malaysia

Reef Check Malaysia (RCM) was registered in Malaysia as a non-profit company in 2007, and since then has established an annual survey programme to assess the health of coral reefs around Malaysia. In the last twelve years RCM has trained over 900 divers to conduct reef surveys at over 200 permanent monitoring sites on coral reefs around Malaysia. RCM is also active in education and awareness programmes, and has a long term education programme for schools. Since 2010, RCM has established several Reef Rehabilitation programmes.

In 2014, RCM initiated its first community programme, the Cintai Tioman Campaign in Tioman, with funding from Yayasan Sime Darby. The goal of the programme is to build ecological and social resilience on the island, with particular emphasis on involving the local community in managing the islands' reefs. In 2016, RCM started two new community-based projects. A project in Mantanani Island brings all the stakeholders together to establish a community-led marine managed area, leading to sustainable economic development on the island. We also joined Department of Marine Parks Malaysia as a project partner in The Mohamed bin Zayed Species Conservation Fund and UNEP-GEF grant to operationalise the Malaysian National Plan of Action for Dugong in Pulau Sibul and Pulau Tinggi, Johor.

This report shall be cited as:

Reef Check Malaysia 2020. *Tioman as a Sustainable Tourism Destination*. 13p.

For further information, please contact:

Reef Check Malaysia
Lot 5.19-5.22, Box 606,
Wisma Central, Jalan Ampang,
50450 Kuala Lumpur, Malaysia

Phone/Fax: 03 2161 5948
Email: wecare@reefcheck.org.my
Website: www.reefcheck.org.my

Introduction: Tourism Development on Tioman

Tourism on Tioman is growing. From the late 1990's until recent years, the number of visitors was relatively stable as other destinations developed (e.g. Perhentian and Redang islands in Malaysia, as well as international destinations in Thailand, The Philippines and Indonesia). During this period, new resort developments on Tioman were few and far between and the tourism market relied on around 65 resorts, mainly small family run operations.

This has changed in the last five years and, as tourist numbers have started to grow, the number of resorts is slowly increasing. However, the existing infrastructure – both social infrastructure on the island and transport infrastructure to the island – is inadequate to cope with this growth. Recent media coverage of proposals to build a new airport has highlighted a need to review the approach to maximising revenue from tourism on Tioman. Should it develop as a mass tourism market, or should it develop as a low volume, high value ecotourism market? How should the economic benefits and social and environmental impacts be balanced to ensure the needs of all stakeholders are addressed?

This paper outlines the arguments in favour of an approach to developing tourism on Tioman that puts the emphasis on sustainability. Such an approach would not only look after the interests of the local community and protects the island's delicate ecosystems but would also provide benefits to the nation's economy. The proposed approach will increase the **value** of tourism to Tioman, while at the same time limiting the **impacts** of that tourism, protecting the very ecosystems and culture that tourists are increasingly looking for as they seek destinations that are authentic and un-spoiled.

As noted in the postscript, this paper was drafted before the full impacts of the Coronavirus were known. The arguments in favour of sustainable tourism seem even stronger today.

SUSTAINABLE TOURISM

Sustainable
tourism
approach
will **increase
the value** of
tourism to
Tioman,
while at the
same time
**limiting the
impacts** of
that
tourism.

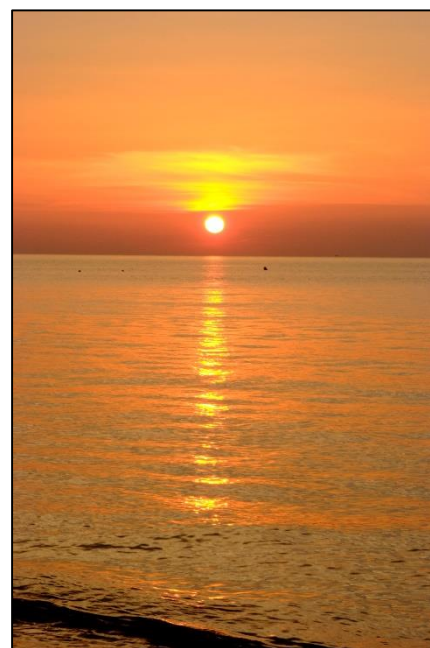
Tioman: A Jewel in the South China Sea

Tioman Island is the largest island off the East coast of Peninsular Malaysia. Measuring some 20 km long by 12 km at the widest point, the island has an area of 135 km² and a coastline of 169 km. Home to a population of nearly 3,700 islanders living in 7 villages, Tioman is recognised as a haven of biodiversity, both terrestrial and marine. The southern half of the island is still heavily forested, much of it virgin rainforest that provides a habitat for many animals, including a number of endemic species. The island's coral reefs are among the healthiest in Malaysia. Tourists visit Tioman for its un-spoiled nature – clear water, quiet beaches, intact forests.

Biodiversity in Tioman is abundant. Much of Tioman Island is covered with tropical rainforest and the island records a substantial list of rare plants with at least 388 taxa of trees, 653 taxa of shrubs, 8 hyper-endemic species and others that have a disconnected distribution skipping mainland Peninsular Malaysia and instead having Thai-Burmese or Bornean resemblances. Some plant species, especially ferns, resemble those found in Kinabalu Park in Sabah. Rare species of *Rafflesia* are also found on Tioman. However, large areas of the island remain botanically unexplored.

There are 138 species of birds on the island, including massive frigate birds, with countless insects and butterfly species. 25 species of snakes are recorded on the island, including the reticulated python, grass green whip snake, common black cobra, king cobra and variable reed snake. There are 32 lizard species, many of them unique to the island.

Tioman records approximately 45 species of mammals, including several protected species such as the vulnerable binturong, long-tailed macaque, the rare Slow Loris (with the one in Tioman potentially being a distinct species from that on the mainland, which could belong to an entirely new taxa); black giant squirrel, red giant flying squirrel, mouse deer, brush-tailed porcupine, and the common palm civet. There are several species of bats, including the 'lesser short-nosed fruit bat' that are native to the area, and are threatened by light pollution from increased tourism development.



Two endemic species are found in the island's intact rainforest: a species of catfish called the Tioman jungle walking catfish; and the Kajang slender litter frog, known only from a small cave near the top of Gunung Kajang.

Tioman Island hosts three related marine ecosystems: coral reefs, sea grass beds and mangroves. Together, they form important connectivity in the life-cycle of numerous marine species. They are an important resource for both food security and employment in the tourism industry on the islands, and a physical barrier to erosion. The island's reefs have some 188 species of corals, 233 species of reef fishes, and 53 species of algae. There are small patches of mangrove swamp forests at various locations around the islands, with 23 different species of mangrove plants including a rare hybrid species. Sea cucumbers, mangrove crabs and other species are common in the intertidal

zones. The island has three species of sea grass in meadows at Air Batang and between Japamala Resort and Pasir Cina.

The coral reefs of Tioman support a wide variety of marine life including the vulnerable Giant Clam, the near-threatened Blacktip Reef Shark, the endangered Green Turtle, and the critically endangered Hawksbill Turtle. Continued coral stress puts the entire ecosystem at risk, which threatens this biodiversity.

Turtle monitoring programmes conducted by Juara Turtle Project found that Tioman Island is an important staging ground in the development life cycle of Hawksbill and Green turtles. Surveys show that most Hawksbill turtles around the islands (including both juveniles and adults) are resident at Tioman Island. In contrast, most Green turtles around the islands are juveniles and are resident for several years before moving on to other foraging grounds. The evidence suggests that Tioman Island serves as a breeding ground for both Hawksbill and Green turtles. The island therefore is very important for the life cycle of turtles. Tioman Island is also an important staging ground and migratory route for marine mammals such as dolphins and pilot whales which are sighted periodically by divers. A number of pods of dolphins are resident around Tioman Island, though no studies on numbers or habitat use have been conducted.



Global and Regional Importance

Tioman's coral reefs feature in two initiatives that highlight the importance of these resources beyond the island itself, giving them importance on a much wider scale.

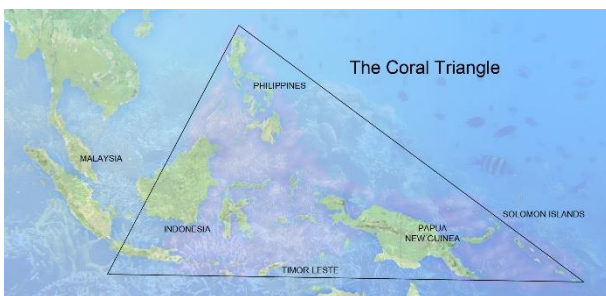
50 Reefs that Must Be Saved

The "50 Reefs Initiative" was launched to identify areas of coral reef that are likely to survive the growing impacts of climate change and can help to repopulate neighbouring reefs damaged by either climate change or local stressors. A global strategy has been developed that aims to protect these important areas from local, non-climate change threats, such as pollution, over-exploitation, etc.

One of the "50 Reefs" runs along the south east coast of peninsular Malaysia as far Tioman and connects across the South China Sea to the Riau Islands province in Indonesian waters. In other words, Tioman is in the middle of a reef area that scientists consider "must be saved" if coral reefs are to survive climate change; it is a critical element in biological connectivity between Indonesia, Singapore, Malaysia, Thailand and the South China Sea.

The Coral Triangle

Recognised by scientists as the area of the world's oceans with the greatest biodiversity, the Coral Triangle covers an area of ocean bounded by Philippines in the north, Malaysia in the West and Indonesia and Papua New Guinea in the South and East. Home to over 500 species of coral and 2,200 species of fish, millions of people rely on the region's reefs for their food security and livelihoods. To protect the coral reefs in this area, the governments of the six 'Coral Triangle countries' signed an agreement to work together to address threats to this important marine biodiversity.



The Coral Triangle Marine Protected Area System (CTMPAS) aims to foster a comprehensive, ecologically-representative and well-managed region-wide system of prioritized individual marine protected areas (MPAs) and networks of MPAs that are connected, resilient, and sustainably financed thereby contributing towards

(i) generating significant, income, livelihoods, and food security benefits, (ii) conserving the region's rich biological diversity, and (iii) climate change adaptation and mitigation.

The CTMPAS includes four categories of MPAs and MPA networks. The highest ranking is Category 4 – Regional Flagship Sites. Tioman is the only Marine Protected Area in Peninsular Malaysia rated as Category 4.

These two initiatives demonstrate the global and regional importance of conserving Tioman's reefs.

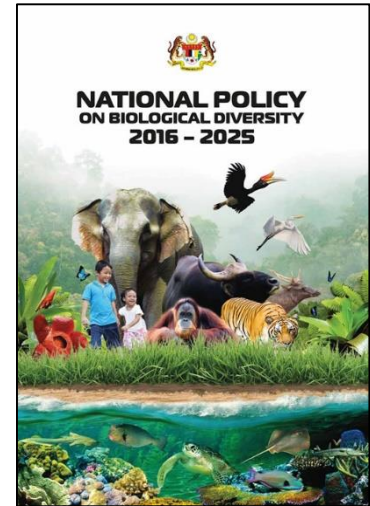
National Policy, International Support

Malaysia is recognised as a “mega-biodiverse” country, and this is reflected in the National Policy on Biodiversity, which states that “Malaysia is committed to conserve its biological diversity and promote its sustainable use”. The policy includes a number of targets that refer to the conservation of coral reefs, including:

- Target 6: by 2025 at least 10% of coastal and marine areas are conserved through a representative system of protected areas
- Target 7: by 2025, vulnerable ecosystems and habitats, particularly...coral reefs and seagrass beds are adequately protected and restored
- Target 8: by 2025, important...marine ecological corridors have been identified, restored and protected.

These targets are part of international commitments of which Malaysia is a signatory, including:

- UN Sustainable Development Goals (SDGs)
- Aichi Biodiversity Targets (CBD)
- Coral Triangle Initiative (CTI).



These various collaborations have a common goal: to conserve Malaysia’s biodiversity, including marine biodiversity.

Coral Reefs: What’s Going Wrong?

Coral reefs thrive in the warm, shallow waters found in tropical seas. Corals have a symbiotic relationship with photosynthetic algae, to which the coral provides a home in return for nutrients. Which means they need to live in clear water, undisturbed by siltation and other effects of land clearing, and free from pollution arising from human activities. Plus, corals are fragile so they need to be protected from physical impacts such as boat anchors and reckless marine tourism activities.

Studies show that large-scale marine infrastructure development typically has two impacts on coral reefs: during construction and post-construction

Infrastructure Development: Impacts of Construction

During construction of any marine infrastructure (marina, land reclamation, etc.) there will be physical destruction of all coral reefs (and other marine ecosystems) in the immediate vicinity of the project site. In addition, silt arising from disturbances to the sea floor will spread and settle on nearby coral reefs, causing further damage. A study in 2007 of an earlier airport proposal for Tioman predicted that prevailing currents would carry the silt plume from the planned land reclamation further than 10 km, damaging significant areas of reef around the northern part of Tioman, the most popular area for snorkelling and diving. The small rocky outcrop of Pulau Renggis, which

according to Reef Check surveys is surrounded by one of the healthiest coral reefs in Malaysia, is near to the proposed project site and would in all likelihood be extremely adversely affected.

When coral reefs are damaged by impacts of this magnitude, the biodiversity of the whole reef system declines, fish populations dwindle and a thriving reef community is replaced with a new ecosystem with much lower productivity. This loss of biodiversity has been noted by researchers monitoring reefs near construction sites around the world, leading to lower coral cover, less fish diversity and increased algal growth. Reefs in this degraded condition are not attractive to tourists.

Infrastructure Development: Post-construction Impacts



Without a deliberate decision to pursue small scale, sustainable tourism on Tioman, with a focus on eco-tourism, it is likely that tourism numbers will start to grow if extensive new transport infrastructure is developed. Construction of new resorts will follow, and land will be cleared both for resorts and new infrastructure such as roads and power distribution. The silt released into the sea from land clearing will smother coral reefs and reduce water quality, further affecting coral health. Large numbers of tourists will generate more waste, adding to existing pollution levels.

The majority of the population on islands like Tioman currently work in family-related tourism operations, including resorts and tourism services such as boat tours. There is little in the way of a ready pool of workers. New resorts will therefore require additional workers to be imported, which will require further accommodation to be built and put added pressure on other infrastructure such as water and power.

Unregulated tourism growth on islands such as Mantanani and Mabul (in Sabah) are useful case studies of the likely impacts of tourism growth on marine ecosystems and implications for local communities. On Mantanani, tourism numbers increased to a peak of 3,000 per day (up from 50 per day just 8 years ago), and coral reef surveys show evidence of increasing damage to marine ecosystems from boats, snorkelers and divers. The supply of fresh water has been compromised due to increased extraction for tourists. On Mabul, where the number of resorts continues to increase, waste management is a serious issue.

Koh Samui in Thailand provides an example of the likely trajectory of coral reef health if tourism is allowed to grow un-checked. In the years since construction of an airport on the island, shallow water ecosystems (primarily coral reefs) have been destroyed over time by resort development and growing tourism.

Have we reached carrying capacity limits?

No reliable estimate exists of carrying capacity for Tioman. However, reports from the island indicate that existing social infrastructure is insufficient for increased tourist numbers:

- There are periodic water shortages, particularly during the busy season. Adding facilities such as an airport, and the additional resorts that would follow to cater for the projected increase in visitors, would exacerbate this problem.
- The island has no centralised sewage treatment system. Water quality tests show high levels of e. coli in some areas, which is indicative of sewage pollution
- The current incinerator is operating at capacity and is unable to manage any increase in waste generated on the island
- The island has very limited transport infrastructure which would not be sufficient to move increased numbers of people around the island. New roads would mean cutting intact forest, with the associated impacts on ecosystems (release of siltation, erosion, etc.)
- Electricity generating capacity is limited and blackouts are common, particularly during peak tourism season. It is likely that new electricity generation capacity would be required to cope with the additional demand of tourism growth.

Thus, with growing tourism would come the need for additional infrastructure – the impact of which has already been described.

Some regional comparisons of the impact of un-managed tourism growth include:

- **Boracay, Philippines** – closed to tourists for 6 months due to tourism impacts, including sewage pollution. The island was subsequently re-opened for tourism, but with strict limits on numbers (reduced from 20,000 to 6,400 per day), and additional requirements for approved sewage systems; single-use plastics were banned and steep fines introduced for littering.
- **Maya Bay, Thailand** – closed to tourists for the foreseeable future due to the impact of large numbers of tourists on marine ecosystems.
- **Komodo National Park, Indonesia** – there are indications that the islands are to be closed from 2020 to reduce tourism impacts.



The Economic Myth – “tourism will create jobs for the local people”

One argument used to promote tourism development on islands like Tioman is the claim that the associated economic growth will bring additional jobs to local communities. However, a distinction must be made between economic growth and jobs, or livelihoods – these are not the same.

Improvements to **livelihoods** initially benefit local residents when tourist numbers increase, creating opportunities to provide services. On Tioman most islanders work in tourism; historically most of the island’s resorts are small scale, family run businesses; and there are opportunities to provide added services to guests, such as snorkelling trips. Tourists visit restaurants and other local businesses. Tioman effectively has full employment, with most locals working in family businesses; villagers who want to work are doing so.

However, once tourism has grown to a certain size, **economic growth** usually benefits outsiders as resort development opportunities are beyond the financial capacity of local residents, and large companies are attracted to the destination. Such resort development brings little benefit to local communities. External employers in large resorts rely on outside workers, which brings no benefit to locals. Large resorts typically offer a comprehensive package of meals and activities, taking away business from local communities who no longer have access to the customers in resorts. Tourists no longer visit village restaurants, use village transport or frequent village shops.



Such conflicts are common. In fact, in extreme cases, development of large resorts can result in **reduced livelihoods** for local island communities. Thus, while the value of the tourism market might grow, there are potentially negative impacts on the livelihoods of locals. And, of course, there is the increased negative impacts on ecosystems.

A survey conducted on Tioman obtained feedback from islanders regarding major development on the island. Many indicated that they are against it. Their main concerns are about improving existing facilities and infrastructure, rather than creating more infrastructure on an island that is already plagued with many quality of life issues.

Value not Volume

Malaysia's tourism industry has developed into an important sector of the economy and current targets for visitors are set to exceed 30 million visitors per year. However, research indicates that the spend per customer is low. Despite this, it seems that the principal KPI for tourism is to attract more tourists.

Clearly, as the number of tourists grows, so too do impacts – both environmental and social. On Mantanani Island, for example, there are strong feelings of resentment among some villagers as tourists walk through the village inappropriately dressed. And yet these tourists provide little or no economic opportunity to villagers while at the same time causing growing environmental impacts that negatively affect islanders.

The United Nations World Tourism Organization (UNWTO): defines sustainable tourism as: “tourism that delivers positive economic, social and environmental outcomes with consideration to the needs of the visitor, industry, community and environment.”

Tioman and other similar islands are suitable as sustainable or ecotourism destinations, given the high endemic biodiversity. Indeed, the National Ecotourism Plan 2016-2025 proposes a number of ecotourism clusters, one of which includes Tioman. Perhaps it is time to change the mantra of “more tourists” to “more value”, focusing on higher value-added products and services. A smaller number of tourists bringing in the same revenue has lower environmental impacts, and requires less infrastructure development.

Travel Trends

According to Revfine, a tourism industry knowledge platform, the top three travel trends for 2020 are:

- Solo travel
- Eco travel
- Local experience

An Adventure Travel Research (US) survey found that:

- 67% of respondents now research a destination and the activities offered before traveling
- 74% worry whether their tourism dollars are going to the right place
- When taking a guided tour, 56% say it's important to use local tour guides
- 70% report often researching a company's ethical tourism policy before signing up for a tour
- 72% are more likely to travel with a company that actively champions for women's rights.

These, and similar reports, indicate changes to consumer preferences, and the emergence of alternatives to mass market tourism. Such transformational travel needs to not only transform the traveller but should positively transform the destination where the tourism takes place.

The Future for Tioman

The value of tourism to the national economy cannot be denied, contributing 6.1% of GDP in 2017, with a value of RM 82.6 billion. In 2018, around 3.5 million people were employed in the sector, making tourism one of Malaysia's biggest industries, accounting for just under a quarter of all employment.

However, research shows that large-scale development is likely to result in destructive impacts to both ecosystems and communities on islands like Tioman. This goes against National commitments to conserve biodiversity and is unlikely to be sustainable in the long term. Alternative approaches that increase the **value** of tourism without significantly increasing the **volume** might be preferable.

Tioman has two characteristics that strongly support the concept of the island being developed as a low volume, sustainable tourism destination:

- Biodiversity: Tioman is a mega-biodiverse island. In both terrestrial and marine ecosystems, the number of species is high and in the terrestrial sphere endemic species exist.
- Natural state: Tioman is still largely undeveloped. It has only one resort with more than 100 rooms; the road network is limited, with many parts of the island only accessible by boat; and large areas of the island have no resorts. Research into tourism trends reveals that more tourists are seeking authentic experiences, preferring destinations that are undeveloped and undisturbed, not developed for mass tourism.



These and other drivers provide a strong case for developing a **low volume, high value** sustainable tourism model on Tioman, rather than the usual mass tourism model. Smaller numbers of visitors would not require investment in extensive new infrastructure or transportation facilities; existing facilities could be upgraded instead.

Should new transport infrastructure be required to serve Tioman, including a new airport, perhaps an alternative would be to consider sites on the nearby mainland where land is more readily available. Efficient, high speed boats could service not only Tioman, but all the islands off the south east coast of Peninsular Malaysia. This would spread the benefits of improved access more widely, while avoiding the inevitable damage that such a development would cause on a single small island.

Author's note: Although references are not listed here, preparation of this paper required extensive research which covered over 100 peer-reviewed scientific and other publications. A list is available on request.

Postscript: Tourism in a post-Coronavirus World

This paper was drafted in February 2020, before the full ramifications of the coronavirus pandemic were known. The number of tourists on Tioman (and other islands) is currently zero; local islanders and tourism businesses are struggling to survive. The long term impacts of this on-going event are difficult to predict, but some trends are becoming clear:

- Tourism industry experts are predicting a long recovery period of up to five years and that mass tourism may never return. The post-coronavirus tourism industry will look very different, with smaller groups looking for nature-based, authentic local experiences in locations where safety and health can be assured. Cities will suffer; islands could benefit – but only if they are able to provide the high quality, small scale tourism experience that future travellers will be seeking.
- A survey conducted by Tourism Malaysia supports this. Nearly 14,000 people responded to the survey, which asked Malaysians about their attitudes to leisure travel post-coronavirus. The results indicate a strong preference for domestic, rather than overseas travel. Almost all respondents rank hygiene and safety as the main priority in deciding travel. And the majority will avoid traveling in crowded areas and shopping/theme park activities.

Both point to a marked change in tourism preferences in the short-medium term: local travel, small groups, open spaces.

A further consequence of this change in the tourism market concerns economic resilience. Island economies are suffering and there is a need to diversify livelihood opportunities by developing new economic activities that do not rely on tourism. Small scale agriculture, seaweed farming, mariculture – all present opportunities for some islanders to earn an income that is not dependent on the tourism dollar. This will perhaps even contribute to the “authentic” feel of a holiday – visiting a small island to participate in the life of the island, not rub shoulders with hundreds of other tourists.

Should we be investing in large-scale tourism infrastructure in this current environment? Or should we be looking long term and preparing our tourism destinations for the new reality: small groups; authentic experiences; peace and quiet? Not new airports, large hotels and mass tourism.

