



PULAU REDANG MARINE PARK

TERENGGANU MALAYSIA



Pulau Redang Marine Park Centre jetty



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Department Of Marine Park
Ministry Of Natural Resources And Environment
Level 11, Block 4G3, Precinct 4,
Federal Government Administrative Centre
62574 Putrajaya, Malaysia

Pulau Redang Marine Park Centre

Facts On Marine Park Administration

What is a Marine Park?

Marine Park is an area of the sea zone two nautical miles from the shore at lowest low tide as a sanctuary for the protection of its marine ecosystem especially coral reefs and its fauna and flora.

Who is responsible for managing the Marine Park?

The Department of Marine Park, a federal agency under the Ministry of Natural Resources and Environment (NRE), has been tasked to establish, administer and manage Marine Park.

Principal goal of establishment

The principal goal of establishing Marine Park in the country is to protect, conserve and manage in perpetuity representative marine ecosystems of significance, particularly coral reefs and their associated flora and fauna, so that they remain undamaged for future generation. In addition, our aims are to inculcate public understanding, appreciation and enjoyment of our marine heritage.

Introduction to Pulau Redang Marine Park

The Pulau (P) Redang Archipelago consists of the 9 islands of P. Redang, P. Pinang, P. Ling, P. Ekor Tebu, P. Kerangga Besar, P. Kerangga Kecil, P. Paku Besar, P. Paku Kecil and P. Lima 45 km off the Terengganu coast. The marine waters surrounding these islands up to 2 nautical miles from the low water mark of the shore have been designated as Pulau Redang Marine Parks Malaysia. Prior to the establishment of the marine parks the same waters were designated as Prohibited Fisheries Waters.

Many people pursue livelihoods and recreational activities in the park waters sharing use of these protected waters with the natural living resources. The purpose of

the Marine Parks is to manage these many uses while maintaining a commitment to the conservation of the marine resources.

The climate of the archipelago is dominated by the north-east monsoon, which blows from November to March, producing a wetter season in these months than during the rest of the year. During this time, there is heavy rainfall and the surrounding seas are rough, making the island group almost inaccessible by boat. Rain, however, is frequent throughout the year with short dry spells. Drainage is provided by the main river of Sungai Redang and several small streams.

About 200 families reside in the fishing village in houses built on stilts on the main island

of P. Redang at the estuary of the Sungai Redang. Presently plans are being made to shift them further inland.

Agriculture is carried out mainly on the flat land of the Sungai Redang Valley with fruit trees lining the hill slopes. Remnants of coconut and pepper plantations still exist on P. Redang. The islanders are mainly fishermen. Some, however, supplement their income by the collection of edible birds' nests from the swiftlet colonies located in the caves along the north-eastern coast.

The P. Redang Marine Park, administered by the Department of Marine Park Malaysia provides special protection and management for marine areas of national significance. The

overall goal will be to protect, conserve and manage in perpetuity marine environments of significance and to encourage the public understanding, appreciation and enjoyment of Malaysia's natural marine heritage by present and future generations of Malaysians.

Mangrove forest is part of the main attraction in Pulau Redang. Both land and water is managed as one integrated ecosystem on a co-operative basis between the Federal and State Government of Terengganu. Development on private land will be governed by environmental planning and guidelines established by the state government so as to minimise adverse environmental impacts on the island ecosystem.

Island Ecosystem

The marine water of P. Redang lies within the Indo-Pacific Region. The diversity of marine fauna of the Indo-Pacific region far exceeds that even of other tropical regions. It has many families that are not found elsewhere. It contains about 500 species of reef-building corals, over 1000 species of bivalves and about 3000 species of fish. The waters in the triangle formed by the Philippines, Peninsular Malaysia and Papua New Guinea, is considered to be the faunistic centre from which other parts of the Indo-Pacific region recruit their fauna.

P. Redang and its associated islets have fringed coral reefs superior to any in Peninsular Malaysia and ranking with some of the best in the world. Over 50 coral genera have been recorded here.

Coral reefs are the richest marine ecosystem in terms of diversity and productivity and are comparable only to the rain forest on land. The living coral reef is a complex system, intricately organized and immensely diverse and is the result primarily of simple animals called coral polyps. Single-cell algae (zooxanthellae) lives symbiotically (mutually benefiting) within the cells of the coral polyp and uses photosynthesis to capture the sun's energy to produce organic food from carbon dioxide, inorganic nutrients and water. This food is utilized by the coral polyp and in the process of photosynthesis the corals are able to deposit their limestone skeleton which over the years develop into massive reefs.

The reefs of the P. Redang Archipelago provide a substrate for hosts of other organisms such as algae, sponges, worms, mollusks, crustaceans etc. All these organisms contribute to the ecology of the reef. The reef also provides major breeding, nursery and feeding grounds for many species of fish and other animals, while the beaches offer nesting sites for the hawksbill turtle (*Eretmochelys imbricate*) and the endangered green turtle (*Clelonia mydas*).

The reef of P. Redang also provides a magical underwater world, with spectacular seascapes, unparalleled in its beauty and

wonder in the bewildering varieties of life forms.

Acting in concert with the reefs are the mangroves which line the estuary of P. Redang. It provides inshore breeding grounds for a variety of invertebrates, fish and prawns. It also acts as a buffer against storm waves and prevents erosion and acts as a filter, preventing siltation and pollution of the coral reefs.

The islands of the P. Redang Archipelago are continental islands and were connected to the Malaysian mainland during the major recessions of the sea that occurred at intervals in the Pleistocene period. When the continental ice caps melted, the islands became separated. The plants and animals of the islands are similar to those of the Pahang-Johore group on the peninsular mainland but thousands of years of isolation in unique island conditions have resulted in the size, shape or colour variations seen among some plants and animals.

The island population probably comprises of species that arrived after isolation by rafting or by intervention of man, and the remainder represents relict populations of the ancient Sunda. The fauna is impoverished when compared to that of the mainland and has a tendency towards species extinction. The resident inland forest bird fauna includes approximately 9 species, as compared to 170 in an equivalent area in the mainland of Negeri Sembilan. A former resident Sharp-tailed munia, *Lonchura striata* seems to have disappeared.

There is also a tendency for evolutionary divergence with the emergence of several species endemic to P. Redang. The introduction of non-native plants and animals to the island ecosystem can devastate native species. The island fauna have also evolved without the presence of carnivorous predators from the mainland and are therefore vulnerable to introduced predatory or herbivorous species. About 16 species of resident mammals, more than 6

species of resident waterside and sea birds supplemented seasonally by migrant birds from the north have been observed.

The islands of the P. Redang Archipelago and the associated waters are therefore unique and have high scientific value because of the opportunities they offer for the study of the above characteristics as well as an area for the enjoyment and appreciation by Malaysians, present and future, of Malaysia's natural heritage. All these characteristics increases the conservation value of the islands and the associated waters.

Coral reefs need clear water, sunlight and a certain temperature range and salinity to survive. Any change in these parameters due to natural and man-made activities would destroy the coral communities around P. Redang.

The main island of P. Redang is inhabited by about 200 families of islanders who fish the waters around the islands. The aesthetically pleasant underwaters and the associated marine environment are attracting increasing numbers of local and foreign tourists who come to swim and dive in the area. Land on the island have also been alienated to private individuals and one can expect proposals for development in future years.

The reef ecosystem of the P. Redang Archipelago is therefore already being subjected to both natural and human induced pressures which are expected to increase in the near future. There are evidences even now of significant environmental damage. In the mid 1970's the coral communities were subjected to a large scale attack of crown of thorns starfish *Acanthaster planci*. In many instances floods, probably caused by man's poor management of the land on the islands, have occurred causing damage to the reefs due to siltation and fresh water runoff. Heavy damage to the reefs in T. Kalong Kechil may have been caused by freshwater runoff from agriculture development in the late 1970's and early 1980's. In the late 1980's the building of a road from the fishing village to the upper reaches of the Sungai Redang estuary was carried out without any environmental considerations and caused massive damage to the hillside and mangroves lining the estuary. The water quality and consequently the reef in the estuary area and that off P. Pinang facing the village have been adversely affected.

Use of fish traps (bubu) and heavy fishing of the nearshore waters of P. Redang have affected the average size and densities of certain commercially valuable fish especially the Serranids and the Lutjanids.

Damage to the coral reefs due to anchoring of boats directly on to the reef are obvious in several places especially in T. Kalong Kechil, the reef slope off P. Pinang fronting P. Redang and the western bay of P. Lima.

Collection of certain animals such as helmet shells, cowries and some rare corals by souvenir hunters have caused disappearance or reduction in their numbers.

Spearfishing has led to the reduction of the larger residential coral fish and animal species such as the grouper, the trevally and the spiny lobsters.

Cutting of the mangroves for wood-poles has brought down sediments into the estuary and caused the water to be cloudy especially after heavy rain. Discharge of raw

sewage from the village will in the long run modify the community structure of the reef ecosystem.

Coral reef ecosystems have a remarkable natural ability for self-maintenance and self-renewal in the absence of disturbances when the natural basic habitat characteristics that favour coral reef formation are maintained. It is therefore important that the impact caused by activities on land and in water by man be minimized or eliminated. It is hoped that the establishment of both the marine and land park by the Federal and State Government of Terengganu and the development guidelines for alienated land will rehabilitate the damaged areas and maintain the coral reef ecosystem around P. Redang for the enjoyment of present and future generations.



Diver taking picture of hawksbill turtle



Crocodile fish



Education programme with Marine Park Malaysia

Sightseeing and Things To Do

The park provides a variety of compatible outdoor recreational opportunities for the park visitor such as snorkelling, diving, picnicking, camping, saltwater, fishing, boating, swimming, jungle-tracking and hill-climbing, bird-watching, wildlife observation and photography, both on land and an underwater.

Snorkeling and diving provides the best means of observing and enjoying the coral reefs of P. Redang. The waters in the park provide one of the most enjoyable and spectacular diving spots in Peninsular Malaysia. Visibility is excellent during most parts of the year.

P. Redang has several stretches of excellent camping grounds with extensive good beaches for picnicking and shallow waters for safe swimming. These can be found in the large bay of T. Dalam to the north of the island, Pasir T. Kalong and Pasir Panjang; isolated and smaller stretches of beach occur on the west and north coast, at Pasir Mak Simpan, Pasir Mak Kepit dan Pasir Changar Hutang.

Boaters can enjoy a sightseeing tour of the island which can take about 12 hours, observing rock formation and the rain forests which covers the major part of the island. A glass bottom boat would allow

visitors to observe the spectacular coral formation in the shallow reef areas.

The island also provides good terrain for hiking. This can be combined with birdwatching, turtle watching, animal and plant observations. Well preserved plant fossils of the Upper Paleozoic age can be observed on the southwestern portion of P. Redang between Pasir Macam Ayam dan Pasir Kechil.

Facilities and Services

Toilet and wash facilities, picnic tables and barbecue pits are provided at selected sites. A jetty at the visitors centre allows boats to come along shore. The park management provides mooring buoys over coral reefs to allow for snorkelling and diving boats. Visitors can shop for small items of food and drinks at the village shops. For hiring of diving equipment and filling of air tanks, visitors can enquire at the respective dive shops.

Anchorage areas

To avoid destruction of corals by anchoring activities, vessels are only allowed to anchor within designated areas.

Mooring buoys

The park managers provide mooring buoys over the coral reef areas to allow for mooring of boats.



Pulau Redang Marine Park Jetfloat