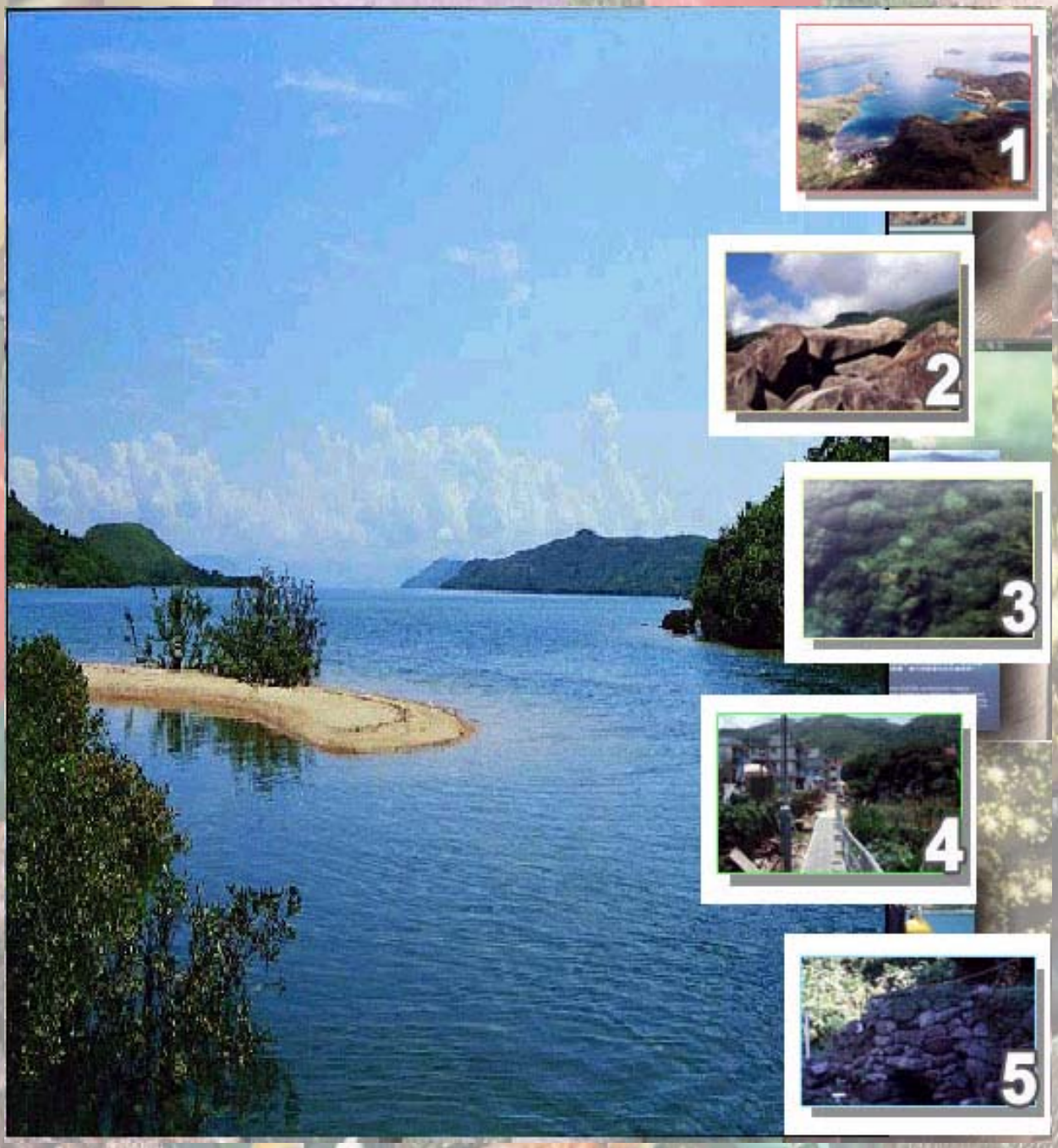
HOI HA WAN –
THE MARINE KALEIDOSCOPE OF HONG KONG



YEAR 2003 CONFERENCE ON "SUSTAINABLE TOURISM"

FRANKFURT, GERMANY

Hoi Ha Wan – the Marine Kaleidoscope of Hong Kong

PREFACE

Hong Kong, a city located in the heart of East Asia, has been a very famous and popular destination in the world since the 1970s. In 2002, visitors arrival in Hong Kong was about 16.6 million. The success of the local travel and tourism industry can be attributed to numerous factors, such as the unique culinary delights, compact diversity of attractions, fascinating blend of East and West, traditional and modern, etc. Hong Kong's image as a modern, exciting and culturally rich city is also a major factor which helps attract overseas visitors.

As the new century comes, it is increasingly recognized that tourism depends much for its success on the quality of the local environment. Tourists have become more and more environmentally aware. Although travel and tourism industry is currently not the main group responsible for creating environmental problems in Hong Kong, these environmental problems will more or less affect the industry. Should that happen, that is when most tourists give up choosing Hong Kong as their destination due to serious pollution and poor environment, Hong Kong's economy would suffer greatly.

Therefore, in view of the negative impacts inevitably brought by the economic development and urbanization, there has been a strong and growing concern for a viable balance between meeting the objectives of environmental protection and conservation, while accommodating beneficial economic and social growth. People begin to realize the need of sustainable development and the United Nations (UN) even affirmed the necessity of establishing sustainable development in 1987.

"Sustainable development" is now becoming a commonly used term in the world and defined as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This concept indeed applies to all areas of economic development, including tourism. Furthermore, according to the World Tourism Organization (WTO), the definition of "sustainable tourism development" is even made clear that "Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future. It is envisaged as leading to the management of all resources in such a way that economic, social, and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity, and life support system."

Sustainable tourism embraces all segments of the industry with guidelines and criteria that seek to reduce environmental impacts, particularly the use of non-renewable resources, using measurable benchmarks, and to improve tourism contribution to sustainable development and environmental conservation.

Sustainability, for tourism as for other industries, has three interconnected aspects: environmental, socio-cultural, and economic. Sustainability implies permanence, so sustainable tourism includes optimum use of resources, including biological diversity; minimization of ecological, cultural and social and social impacts; and maximization of benefits to conservation and local communities.

Hoi Ha Wan, a 260-hectare marine park locates in northeastern New Territories of Hong Kong fits the requirements of developing sustainable tourism quite well. In this case study, we attempt to explore the feasibility of developing sustainable tourism in the Hoi Ha Wan Marine Park and the impacts that such development may bring.

The precise origin and meaning of Hoi Ha is unclear as with the names of many villages in Hong Kong. The literal translation of the name is “under the sea” but probably the village acquired the name from neighbouring communities who used the expression “hoi Ha” to refer to “that place next to the sea”. Hoi Ha Wan is also known as Jones Cove. It is a deeply incised, drowned, river valley some 2 km wide at the mouth, 1km at the head and about 2.5km long and with an area, of about 3.0 km^2 (285 hectares). It faces approximately north and its entrance is protected by two small islands – Pin Chau and Fung Chau. The Gruff Head and Wan Tsai Peninsula form the western and eastern flanks of the bay, respectively. The bay is shallow, nowhere deeper than ~20m, and at the head, an extensive beach some 250m long is formed. This beach and shallow offshore sands are highly dynamic, creating a westerly-directed sand spit that is periodically broken down during heavy rainfall, by the enhanced outflow from a stream which discharges into the bay, but then eventually reforms. Flow in the stream may be as low as 0.001m^{-3} /second in winter but as high as 10$m^{-3./}$second in summer.

The Wan Tsai Peninsula was, from 1983 to 1986, used as a “borrow” area, with the topsoil barged around into Tolo Harbour to form reclamation material for Ma On Shan new town. The peninsula has now been revegetated but the effects of soil removal are still seen on the eastern shoreline where the rocks and former subtidal corals are covered by a think layer of silt washed into the bay by rainfall. The peninsula has now, however, been included in the Sai Kung West Country Park.

The Head of the bay thus comprises a highly dynamic sand beach, spit, lagoon and stream estuary with sand periodically accumulating and dispersing around the inner flanks. The outer shores, of coarse volcanic tuff, are coral-fringed to a maximum depth of –10m C.D. Parts of the eastern shoreline are degraded but are being progressively revitalized.

Hoi Ha has easy access to the fishing grounds and the shallow-water communities of Tolo Channel and Mirs Bay. It is also well sheltered against occasional storms. The

bay is fed by a small stream which has created a valley to the south of Hoi Ha village and in places where it broadens sufficiently. The land has been exploited for agriculture, with a pattern of now abandoned paddi-fields still evident.

Hoi Ha Wan has been a public sea area with a sandy beach and villagers living and working nearby for a long time. After the enactment of Hong Kong's Marine Parks Ordinance, World Wild Fund (WWF) Hong Kong, the Hong Kong Marine Conservation Society and the Marine Biological Association of Hong Kong joined hands in proposing Hoi Ha Wan as a marine park in Hong Kong. On 5 July 1996, Hoi Ha Wan was designated as one of the first two Hong Kong Special Administrative Region's (HKSAR) marine parks, specifically to protect its delicate coral communities.

While Hoi Ha Wan now comprises of habitats which are essential in sustaining a very unique ecosystem, public access is still allowed. Recreational and leisure activities are available to the public. The major attractions of the Hoi Ha Wan Marine Park include:

Sandy Beach

Coral Reefs

Mangroves

Lime Kilns

The Hoi Ha Village

SUSTAINABLE TOURISM - A DOUBLED EDGED SWORD TO THE HOI HA WAN MARINE PARK?

Today, more and more people have learnt to appreciate the beauty of coral reefs and become aware of the protection of coral reefs. Because of that, residents of Hoi Ha Wan have been benefited from urban visitors. Stalls and restaurants are established to serve the needs of these urban visitors. Such operations have brought economic benefits to the Hoi Ha Village. Since Hoi Ha Wan is designated as a protected marine park., more tourists are attracted to Hoi Ha Wan. This brings more income to the local stalls and restaurants and it seems that development of the tourism industry in Hoi Ha Wan is a sure thing, since Hoi Ha Wan meets most of the requirements of developing tourism, or in a more trendy saying - sustainable tourism. Developing sustainable tourism will certainly benefit Hoi Ha Wan. More facilities such as roads, footpaths and toilets will be built. Better access to the park will be provided to both local and overseas visitors. On the other hand, there will be disadvantages due to the developing of Hoi Ha Wan. As tourism develops, there will be various kinds of pollutions; the natural environment will be disturbed; local life style will be altered; not to mention other unforeseeable damages There are always the pro and con sides in tourism, even in sustainable tourism. Shall we develop sustainable tourism in the Hoi Ha Wan Marine Park? If yes, can we and how do we solve the problems that come along with the development? This is the issue of our case study:

To investigate the prospect of the Hoi Ha Wan Marine Park continuing to survive for the benefit of future generations.

The investigation will be done through an examination of Hoi Ha Wan's present management, threats and future planning, as well as a comparison with other marine parks.

After Hoi Ha Wan has been declared a protected Marine Park, more educational information, such as booklets and informative books are given out to the public, in other to arouse the public attention towards the protection of marine heritage

Moreover, there will be the usual visitors center in the Hoi Ha Wan Marine Parks. There would also be more stalls and restaurants to serve the tourists. Thus local stalls and restaurants will face new and bigger competition. This is going to affect the income of the local people.

ATTRACTIONS OF THE HOI HA WAN MARINE PARK

Park Map: with Visitors Code and Attractions

Aerial view of the Hoi Ha Wan Marine Park

Sandy Beach

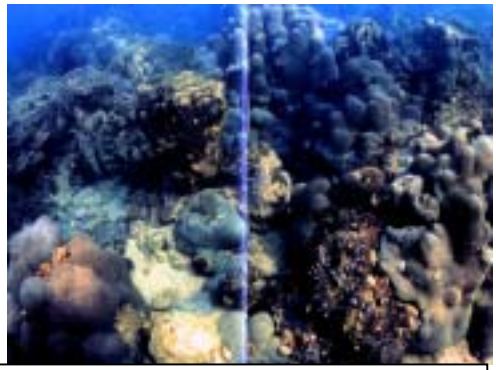


The sandy beach is one of the most important assets of the Hoi Ha Wan Marine Park, because recreation activities including swimming, diving, sailing, canoeing and yachting are allowed. Anchoring is permitted only in designed anchoring areas in the marine park. The water in Hoi Ha's sandy beach is clear and clean; the sand is soft and the wind is calm. Marine organisms can always be found on the beach. However, visitors are not allowed to touch or to remove any marine lives in water or on the beach. To further protect marine lives, certain recreational activities including water skiing, water scottering, jet skiing and recreational fishing are prohibited. Since swimming and diving are allowed, coral reefs can be seen up very closely, but they are prohibited from touching.

Coral Communities




Hoi Ha Wan is famous of its coral reefs in the bay area. Being a sheltered bay with good water quantity, the Hoi Ha Wan sea area provides a good environment for corals to flourish. The coral communities in Hoi Ha are not tropical reefs. The representative species are Pavona decussata, Platygyra sinensis, Porties lobata, Alveopora irregularis and Cyphastrea serailia. Thirty-nine out of 50 recorded local stony coral species can be found here. Furthermore, a wide variety of animal species of scientific interests can be found in Hoi Ha Wan. Since there is a growing number of scientists and conservationists are expressing concern to the destruction (that is taking place) of corals and coral reefs, more and more tourists, both local and foreign, would like to visit Hoi Ha Wan to see these valuable corals.



Coral watching is gaining popularity in the Hoi Ha Wan Marine Park

Mangroves

Mangroves refer to flora from several different plant families, which share a unique ability to grow in coastal areas. A small mangrove community is located at the estuarine of the Hoi Ha Wan Marine Park. The mangrove community occupies about 0.53 hectares of area. Four true mangrove species including Kandelia candel, Aegicera corniculatum, Excoecaria agallocha and Bruguiera gymnorrhiza are recorded in this mangrove community. While two other true mangrove plants, Avicennia marina and Lumnitzera racemosa were also recorded in other mangroves sites in Hoi Ha Wan Marine Park. Mangrove areas commonly act as nursery grounds for juvenile fishes and other intertidal and subtidal invertebrates.

Lime Kilns

Plaque explaining the construction of a lime kiln

One of the famous scenic heritage spot in Hoi Ha Wan is the remnants of lime kilns. Four lime kilns were built by the villagers of Hoi Ha about 100 years ago to make lime by burning coral readily available in Hoi Ha Wan. Two were built separately near the tip of the headlands which flank either side of the bay and are now in ruins, but two surviving kilns are located on the eastern shore of inner Hoi Ha Bay, close to the beach. The latter kilns were built next to each other, with one larger than the other. No historical record exists to indicate exactly when the kilns were built, but they are likely to stem from the period of maximum coral-burning activities in the early 1900s. The kilns were restored to their original state in June 1982, by the Antiquities and Monuments Office of the Urban Services Department, with the help of the Hoi Ha villagers. The lime refining industry was one of the oldest industries (1800 - 1939) in Hong Kong, which refined lime from either oyster shells or coral skeletons for construction and agricultural uses. The once prosper industry in Hoi Ha Wan area reflects the history and longevity of coral communities in the Park.

Top view of a lime kiln remnant

Hiking Trails

A well constructed hiking trail

Being formerly part of the Sai Kung Country Park which is famous for its hiking trails, the Hoi Ha Marine Park offers some quality hiking trails. The trails are, however, relatively short compare to other hiking trails within the Country Park. The Hoi Ha Trail, being the most famous hiking trail of the marine park, featuring quality biodiversity and great views of the bay area, is rather short in distance. It takes only 3 - 4 hours to finish hiking there. An alternative is the Hoi Ha - Lai Chi Chong Trail (again a 3 - 4 hour walk). This relaxed walk features two picturesque villages and beautiful lowland valleys.

The Hoi Ha Village

Not exactly considered an attraction of the marine park, the Hoi Ha village is basically residential. However, the village provides some basic services such as convenience stores, small restaurants, water sport equipment rentals, etc. to visitors throughout the years. Recent years have seen some resurgence in the fortunes of the Hoi Ha Village as the beach and bay area have become popular as a place for many forms of summer recreation. For some villagers, one of the main sources of income is now the hiring out of pleasure boats and the sale of soft drinks and food.

OUTDOOR ACTIVITIES IN HOI HA WAN

In addition to coral-watching and visiting mangroves or lime kiln remnants, the following outdoor activities are also famous in Hoi Ha Wan.

Kayaking

Hoi Ha Wan is situated on the northern coastline of Sai Kung Peninsula and is one of the four marine parks in Hong Kong. The bay is sheltered and is a perfect place for kayaking, and viewing coral and various reef fish.




Kayaking is generally available all year round, with best months from May through September.

Scuba Diving

With improving water quality, Hoi Ha Wan is one of the best easily accessible scuba diving areas in Hong Kong. The coral and reef fish in their natural habitat even interested scientific researchers.

Deep water diving and scuba diving



Hiking

Hoi Ha Wan is one of the favourable places in Hong Kong suitable for short hikes especially in the months of September, October, November, December, January and February, mainly because of sunny dry weather with cool temperatures.


FACILITIES AND SERVICES

Current facilities in the Hoi Ha Wan Marine Park is considered better than basic, although they are already the best amongst the four marine parks of Hong Kong.

First of all, while access is considered not good when the park was firstly designated, marked improvement in public transportation is seen in the last several months. The disastrous SARS had made the Marine Park a hot spot by weekends of the SARS months (March to June 2003) when most families wanted to avoid crowded shopping centres. Its sandy beach, coral-watching tour and eco-walks (organized by the AFCD during weekends, free of charge) makes Hoi Ha Wan an attractive place for leisure and relaxation hence increases its popularity. Fame improves accessibility. While good access remains mainly in weekends and public holidays, it is now relatively convenient to travel to Hoi Ha Wan by public transportation and the transportation fee is relatively low. Hence more and more people love going to Hoi Ha Wan to spend their weekends.

Secondly, there is no overnight accommodation available in the park, not even a campground. Visitors are forced to become excursionists.

Thirdly, there are original only two residences turn small store-eateries in the marine park. Visitors can only get simple food and basic groceries such as soft drinks and breads there. These two store-eateries also rent diving equipment and offer fresh water shower stalls for swimmers. The increase of visitors prompts more local residents turn their residence to store-eateries. There are a total of four store-eateries in the marine park now. While menus are still restricted to basic fast food and noodles, there is a 30 – 50% increase in prices, particularly “changing room” and “ fresh water shower” services. Service, on the other hand, has seen a 50% deterioration.

A residence-eatery with shower facilities, locker and equipment rental.

Fourthly, the marine park is basically self-guided. Basic information is provided at the park’s miniature visitor centre located at the park entrance. Currently, the center offers free of charge eco-walks of the marine on weekends, on a first come first served basis. Guided tours are available only on an advanced booking basis to the AFCD. WWF’s Marine Life Centre is currently under construction. It is scheduled to open in late 2003.

The Hoi Ha Wan Marine Park Visitors Centre: outside (left) and inside (right).

Fifthly, there is only one permanent public toilet in the whole marine park, across from the park visitors centre. Temporarily chemical dry toilets are now being placed near the park entrance to ease the pressure of the increasing number of visitors.

Finally, signage is considered insufficient in the marine park. There are only few road signs and signposts along trails indicating distance from and to points of interest.

One of a kind signs in the Hoi Ha Wan Marine Park

ISSUES RAISED BY THE INCREASING POPULARITY OF THE MARINE PARK

Pollutions

Increasing number of tourists brings many problems which did not exist before. First of all, **air pollution**. When Hoi Ha Wan becomes popular and famous, there is an increasing number of public transportation including buses, mini-buses and taxis going in and out there. These vehicles emit waste gases, such as carbon dioxide, carbon monoxide and sulphur gases, which result in air pollution. The situation is worsen when taxis leave their engines on while waiting for customers.

Long lineup waiting for the environment unfriendly mini buses (left). Joining the environment unfriendly team are idle taxis with engine running (above).

Moreover, some local residents allow their dogs to swim in the bay. It will cause **water pollution** and affect the hygiene of the water as pets may leave their wastes in the sea. Water pollution also exists in the form of waste water (from showering water and dish washing water of the local stores and eateries) going into the nearby stream then into the bay area. All these actions cause a lot of damage to marine lives.

Feet washing waste water goes into the nearby stream then into the bay area, damaging the mangroves and marine lives in the bay area.

Lack of moral awareness from the tourists

Tourists should always cultivate the habit of listening and observe and follow the rules and instructions in the destination. However, in Hoi Ha Wan, some tourists touch the marine animals to satisfy their curiosity. Some selfish tourists even take home corals, shells and starfish as souvenirs. By doing so, they have act against the Marine Park Visiting Code.

A park visitor violating the Marine Code by picking up a shell crab, hence disturbing the marine living environment.

To solve these two problems, the government should set up some laws and regulations to restrict such human activities that will cause pollution and/or damage the environment. The government should also educate the public to become more aware of up-keeping the environment and be more self-responsible or they will be fined and penalized. The AFCD should launch campaigns on public awareness of environmental protection and provide up-to-date information to the general public. Regarding the "swimming pets" issue, the AFCD may employ more staffs to check illegal activities.

Insufficient supporting facilities

As more tourists visit Hoi Ha Wan, facilities becomes an important issue in attracting visitors. There are currently not enough supporting facilities in Hoi Ha Wan. Footpaths are so narrow that that people can only walk in single file. Most of the facilities are old and primitive. Tourists always have to wait in order to use these facilities and there is always a long queue. There are not enough washrooms and they are not sanitarily clean (as most of them are dry chemical washrooms). Pollution also exists in the form of rubbish (left by the tourists directly and via the local stalls). The increasing number of tourists has also prompt local shops to increase the price of their goods and services.

Narrow footpath inflicts passenger traffic congestion.

To tackle the problem, the government should build more sanitary washrooms and

Dry Chemical Toilets
(located near the entrance of the park)

changing rooms (with lockers) to ease the current pressure. From a long term planning perspective, the government should study carefully the capacity of the marine park and impose entry restrictions. Admission charges may be considered. The revenue collected can be used to maintain the marine park. AFCD eco-tours (currently free of charge during weekends) should be an attraction when the marine park charges admission.

Sub-standard Services

As the number of visitors increases, visitors will demand more services. Currently there is limited amount of eateries and facilities in Hoi Ha Wan and they provide basic services. Pricing on goods and services varies from weekdays to weekends (ask a shopkeeper to look after something for a short period of time costs $5 in the weekends, but only $2 during weekdays). Servers are also not friendly. Very few know English, which may be a problem when dealing with the increasing amount of foreign tourists.

A residence-eatery

A basic menu – in Chinese only

Since this is likely an on-going problem, long term planning is need. They may include measures such as to increase the number of facilities (by helping locals to set up), to provide training to local servers, to impose price regulation. Government involvement is of utmost importance in this part as such large scale and long term planning would be beyond the ability of any local community and/or organization.

MANAGEMENT

Legislation and Management

Hoi Ha Wan was designated a site of Special Scientific Interest in 1989, and a marine park in 1996. It is governed by the Marine Parks Ordinance of Hong Kong

The Marine Parks Ordinance, Chapter 37 (1995) allowed the Hong Kong Government to designate marine parks and reserves with the following objectives:

- To protect, restore and enhance marine lives and marine environment therein,
- To regulate the uses of resources in marine parks to meet the needs and aspirations of future generations
- To provide opportunities for educational and scientific studies on marine lives and the marine environment
- To facilitate compatible recreational activities in marine parks.

The Authority responsible for enforcing the Regulations of the Ordinance and managing the parks and reserves is the Marine Park Authority. The Chairman of the Country and Marine Parks Board is the Director of the Agriculture, Fisheries and Conservation Department of the Government of the Hong Kong SAR. At policy level, the Authority is responsible to the Secretary for Planning, Environmental and Lands. The Department has established its own administrative team with Marine Conservation Officers and supporting field staff. Because the department is also responsible for the country parks and the marine parks of Yan Chau Tong and Hoi Ha Wan are surrounded by the Plover Cove and Sai Kung country parks, respectively, the Government has the opportunity to manage both land and water in these areas for the future.

ECOLOGICAL THREATS

Pollution and land reclamation are major threats to the coral communities of north-eastern Hong Kong. The situation is worsened by the combined effects of over-fishing, increased scuba diving and shell and coral collecting.

To Hoi Ha Wan, the greatest threat overall is from pollution of eastern shores with concomitant reclamation, dredging for marine sands, dumping of dredged materials at sea, effluent discharge and a dramatic overall decline in inshore water quality.

Hoi Ha Wan is close to the entrance of the Tolo Channel. The Wan Tsai peninsula was used as a borrow area between 1983-1986 and caused water pollution of Hoi Ha Wan with silt lost into the bay, through run-off, smothering the corals on the eastern shores. Much of this pollution thankfully sweeps past Hoi Ha Wan and only slowly diffuses into it.

The third threat is local fishermen who use almost every conceivable means to catch fish of every size, shape and age. Fishing with explosives is banned in Hong Kong, but the practice continues. Small fish traps are set by villagers and sampans catch fish fry in fine nets for subsequent growth in the cages of mariculture rafts. An auxiliary threat is the growing band of scuba divers, many of whom spearfish and collect shells and coral.

Litter is a continual problem, particularly at camp sites, in all country parks of Hong Kong. It is fortunate that such a problem is not prominent in marine parks as none of them allows overnight camping. Uneasy access to most of these marine parks also helps to minimize this littering problem.

CONSERVATION

Along the coast of mainland China, corals survive precariously. Even on Hainan Island where coral growth is most luxuriant, the process of coral conservation has only just begun now. The once splendid reefs have been largely destroyed by dynamite fishing, coral collecting for burning, construction and tourism, and pollution. The situation is not as worse in Hong Kong. However, it has not until recently that protection been applied to coral areas.

This situation is in sharp contrast to other countries of the West Pacific where marine reserves are well established and many more protection plans are proposed.

The establishment and protection of marine reserves similar to those which have been created in many other western countries can be considered as the most important act to Hong Kong's coral communities. The active conservation of areas of outstanding biological interest, particularly of Hong Kong's eastern and southeastern waters, has now been given priority in marine planning. Marine parks and reserves extend the already protected country parks beyond the tide-line to protect delicate marine communities from the adverse effects of man at his most careless.

Hong Kong's northeastern waters consist important reef-building corals with their unique and diverse associated fauna. The best sites for reserves in this area are waters off islands such as Tai Nim Chau, Ngo Mei Chau, Wong Wan, Chek Chau and the remotest island of Ping Chau; and sheltered bays as is the case with Hoi Ha Wan.

In 1989, the Country Parks Authority of the Hong Kong Government established a working group of officials, local academics and representatives of the fishermen's associations to investigate the feasibility of designating marine parks and reserves in Hong Kong's 1800km^2 marine waters.

The Marine Parks Bill 1995 (Chapter 37) was passed by Hong Kong's Legislative Council on 31 May 1995, coming into effect, as the Marine Parks Ordinance, on the following day. On 10 August 1995, the Country Parks Board was renamed the Country and Marine Parks Board and its working group became the Maine Parks and Reserves Committee.

Since 1996, 2 special conservation programmes have been deployed in Hoi Ha Wan. They are namely artificial reef and mangrove conservation. Both programmes have enjoyed a large degree of success.

Hoi Ha Wan's uniqueness (corals, mangroves and dynamic sandy beach with a lagoon behind it - the only one in Hong Kong) draws the attention of the World Wide Fund (WWF) for Nature Hong Kong. With the Hong Kong Jockey Club's donation of HK$38 million, the WWF has decided to build a Marine Life Interpretative Centre at Hoi Ha. The centre is scheduled to unveil to the public in late 2003.

Artificial Reef

What is artificial reef?

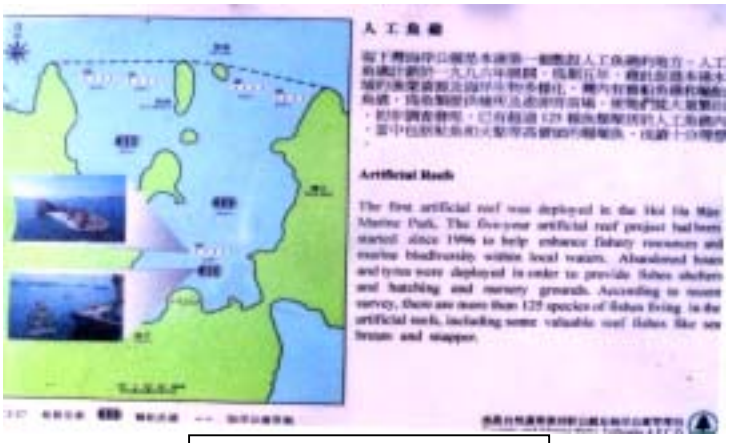
The main aim of developing artificial reefs is similar to putting up artificial nest boxes: creating and providing a suitable environment for wildlife. Artificial reefs can encourage growth and development of a great number and variety of marine organisms, particularly useful for enhancing the variety and abundance of coal reef fish, which are influenced by the limited number of habitats in Hong Kong's seabed.

Artificial reef project

Since 1996, the Agriculture, Fisheries and Conservation Department has carried out a 5-year programme, aiming to enhance fisheries and to promote bio-diversity in Hong Kong's marine environment.

Deployment of artificial reefs in marine parks

Twenty vessels, 216 tyre units and 131 concrete modules, including "Reef Balls" and 8 quart rocks were carefully prepared as artificial reefs surfaces and sunk into Hoi Ha Wan and Yan Chau Tong Marine Parks



Locations of artificial reefs

A vessel is deployed as a mean of artificial reefing

Do artificial reefs achieve their objectives?

All deployed artificial reef surfaces are heavily encrusted with a rich growth of invertebrates, including barnacles, bivalves, tube worms, sponges, bryozoans and squirts (tunicates). Juveniles of many high value reef fish have established impressive populations and have also taken up residence. Over 110 species of fish have been recorded on Hong Kong's artificial reefs.

Mangrove Conservation

Mangroves in Hoi Ha Wan Marine Park is now classified as Protect Mangrove Stands in a restricted area. They are also being designated as a site of Special Scientific Interest.

Other actions include promotion of public awareness on the conservation of mangroves and mangrove planting.

At least four types of mangroves are found in the Hoi Ha Wan Marine Park.

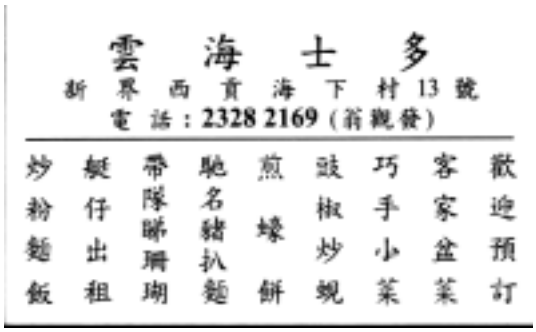
An AFCD guide in a youngster educational tour

An AFCD staff talks about the importance of mangroves during an eco-walk

LOCAL OPINIONS ON HOI HA WAN BECOMING A MARINE PARK

To find out the pros and cons of the changes of Hoi Ha Wan, locals were interviewed. The interviews were conducted in April, 2003

Interview with a local eatery owner/tour operator



Q: **Do you operate coral-watching tours? And how much do you charge for each tour?**

A: Yes. It costs about $60 – $80 for a child and $120 - $180 for an adult. We also have diving tours.

Q: **How many people are there in a coral-watching tour?**

A: There are usually 7 – 8 persons in a group.

Q: **I understand that you are an owner of a eatery in Hoi Ha Wan. Do you need to apply a license for arranging a tour of coral-watching from the government? I mean the license is for the safety of the tourists.**

A: No, we do not need to apply for a license. The government grants us immunity. Don't worry, the tours are safe.

Q: **Is there a daily maximum for the tours of coral-watching?**

A: No, there is no maximum. You can always dive or join a coral-watching tour.

Q: **Do you do diving apparatus rental?**

A: Yes, we rent wetsuits, goggles and other diving apparatus. We will provide all the diving gears when you join our diving tour.

Interview with a local resident (her family runs a store-eatery in Hoi Ha Village)

Q: **How long do you live here?**

A: I was born in Hong Kong. I am 29-year-old. I have lived here for15 years.

Q: **You have lived here for 15 years. As the tourists come and go daily, do you think they have made any damages to Hoi Ha Wan?**

A: Of course they do. During peak hours of the weekends, there are always five to six tours in the area. First of all, tourists damage the environment by breaking tree branches and picking flowers; they also rubbish. Secondly, tours create noise pollution as the tourist guides always use loud speakers. And most importantly, tourists damage my junks. They sit on the junks and take photos. They think the junks are for public use; (She looked very upset) Some even threw rubbishes into my junks.

Q: **Have the government made any policy to improve the marine park?**

A: I don't think so. Since Hoi Ha Wan is designated as a marine park 1996, the number of tourists keeps increasing. I think they are polluting the place. Now, should anyone wants to be a fisherman and fish in the Hoi Ha area, he needs to get a special license from the government. It was not like that before.

Q: **How do you want to advise the government in making improvement here?**

A: The marine park is fine, only that the attitude of the park staff is not polite to local residents. Moreover, WWF's new rules for existing businesses to apply license is hurting small businesses. My family owned a stall in Hoi Ha. We just cannot afford the high license fee.

Interview with a second local resident (man, owner of a store)

Q: **How long have you been living here?**

A: I was born in Hoi Ha. However, when I was 18 years old, I went to England. I lived there for 30 years.

Q: **Do you think the tourists have caused any damages here?**

A: Not that much.

Q: **Have the government made any policy to improve the marine park?**

A: Good access by public transportation is very important. So far, there is no special arrangement from the government.

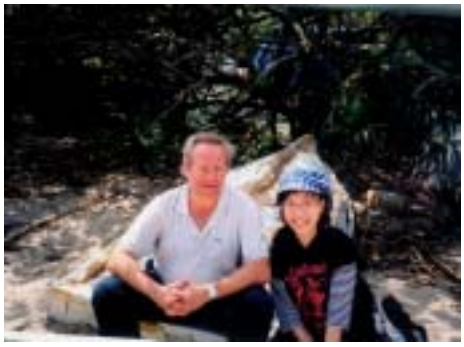
Q: **How about your business?**

A: The business is growing now.

Q: **Do you think tourists cause noise pollution in Hoi Ha?**

A: When crowded, of course, but that only happens occasionally on Sundays.

Interview with a third local resident (man, westerner)



Q: **Do you live in Hoi Ha Wan or do you come to visit?**

A: I have been living in Hoi Ha for five years. The countryside here is beautiful.

Q: **Do you think the tourists have brought damages here?**

A: Not really. There are not that many tourists.

Q: **What do you like most in this park?**

A: The trails.

Q: **As compared to beaches of other countries, what do you think about the Hoi Ha Wan Marine Park?**

A: I don’t know. That’s a tough question.

In addition to the above formal interviews, a few more informal interviews were also conducted. One foreign tourist said that he was surprised to see such a beautiful place in Hong Kong. The water in Hoi Ha was clear and the air was fresh. Yet the government construction work damaged the naturalness of the park. He was shocked and felt pitiful when he was walking on the trails. Though he could walk comfortably, he felt the trail was not natural. He said that he has not seen any foreign country built similar trails to destroy the environment.

A local resident complained that government policy has disrupted her normal life. She owns a convenient store in the front portion of her house. The store had been running for over 30 years and is her income source. She has to close down the shop now as if she wants to continue her business, she has to get a relatively expensive license from the government. In addition, she also needs to adorn her store in order to meet the new requirements. She thinks the cost was so great that she is not able to afford it. Thus, she decided to give up the store. She is now unemployed.

Another local resident supports the government policy. He is a local restaurant/stall owner. Since Hoi Ha Wan has become a marine park, more tourists come; his business increases, especially in the peak seasons. He is glad that Hoi Ha Wan has been designated as a protected marine park. He said that the designation has make Hoi Ha Wan famous and brought more tourists and hence more income to him.

INVOLVEMENT OF THE WORLD WILD FUND (WWF)

WWF Hong Kong, established in 1981, first raised funds for the Giant Panda and other endangered species. In the 1980s, WWF developed the Mai Po Education Centre and Nature Reserve into a priceless resource for the people and wildlife of greater China - success best exemplified by China declaring Mai Po to be her seventh Ramsar Site in 1997. WWF Hong Kong has been working with Government since 1988 to establish marine parks and reserves in Hong Kong, including Hoi Ha Wan in Sai Kung West Country Park. After eight years of active WWF Hong Kong involvement and support of Government in the drawing up of guidelines and enabling legislation for marine parks and reserves, Hoi Ha Wan was designated one of Hong Kong's first Marine Parks in June 1996. One of WWF Hong Kong's primary goals is to establish a Marine Life Centre to provide a marine educational facility at Hoi Ha Wan. To promote Hoi Ha Wan and to raise funds for the center, a charity walk was held on 27th April, 2003.

The Hoi Ha Charity Walk: Promotion materials (left); Actual event (above)

The WWF Hong Kong Hoi Ha Wan Marine Life Centre

Telephone interview with WWF Hong Kong

The commitment of WWF Hong Kong on developing the Hoi Ha Wan Marine Park as a second popular natural reserve in Hong Kong, after the Mai Po Natural Reserve has prompted us to conduct a telephone interview with them. The interview was conducted in late April, 2003.

Q1: **Why does WWF choose Ho Ha Wan to set up Hong Kong's first Marine Life Centre and put up a fund raising campaign in order to attract tourism?**

A1: Firstly, there are more than 50 coral species found in this tiny 260 ha bay, which makes Hoi Ha Wan a unique site in terms of the diversity in marine lives. Easy accessibility of the park enhances enjoyment and education purposes. Secondly, WWF has decided to make Hoi Ha Wan a regional training center for marine resources management. Finally, more tourists should be allowed to enjoy beautiful environments of Hoi Ha Wan.

Q2: **Why did the government choose Hoi Ha to build the new center? Instead of choosing other marine parks?**

A2: Compare to the other 3 marine parks of Hong Kong, which are difficult to access. Hoi Ha Wan is convenient; one can go there by public transportation and private cars.

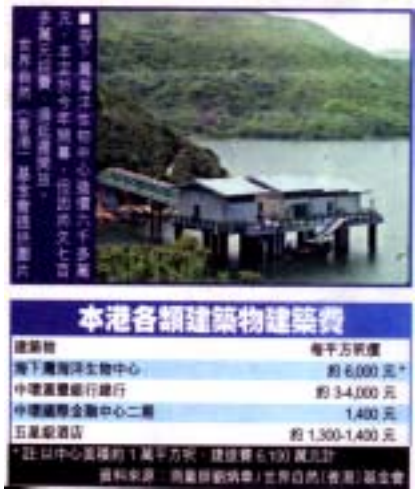
Q3: **Will the government fund the construction of the new center?**

A3: The government will not contribute much money. Construction of the Center has been generously funded by The Hong Kong Jockey Club and the Hong Kong Bank Foundation through a funding commitment of HK$38 million and HK$14.5 respectively.

Controversy

The WWF Hong Kong Marine Life Centre is originally scheduled to open to the general public in late 2003. Due to the problem of under budgeting, it will not be able to meet the original schedule now. Apparently, there has been some miscalculation in the costs of construction. The opening has been postponed to early 2004, according to WWF Hong Kong. Newspaper reports have also revealed that WWF Hong Kong may also have missed the environmental impact assessment. At the time this report is printed, WWF Hong Kong has not respond to any of the comments.

WWF Marine Life Centre over budgeted, may not be able to complete construction!
The Apple Daily, August, 2003



Newspaper cuts on the over budget controversy


Scheme would be illegal now, claim critics

Newspaper cuts on locals protest of WWF's Environmental Impact Assessment
South China Morning Post, April, 2003

INTERNATIONAL COMPARISON

Western Australia: Marine Parks and Reserves

Western Australia has a remarkable marine environment. The State's 12,500-kilometre coastline begins in the tropical waters off the Kimberley coast and extends to the cold water zone as far south-east as the Great Australian Bight.

Because of a southward-bound band of warm water known as the Leeuwin Current, tropical reefs flourish further south here than anywhere else in the world. And the 260-kilometre-long Ningaloo Reef is quite as beautiful as the better known Great Barrier Reef - yet you can fin out to it from the shore!

The giant whale sharks off North West Cape, the dolphins at Monkey Mia in Shark Bay and migrating humpback and southern right whales off Perth and the unspoilt continental shelf atolls of the Rowley Shoals attract thousands of visitors each year.

To protect these remarkable areas, there are marine parks at Marmion, Shoalwater Islands, Swan Estuary, Shark Bay, Ningaloo and the Rowley Shoals and a marine nature reserve at Hamelin Pool in Shark Bay, which has some of the finest examples of stromatolites or 'living fossils' found anywhere on Earth. A number of other marine areas have been proposed for consideration as marine reserves and these waters may be declared as marine parks at some stage in the future.

The purpose of marine parks is to ensure that their underwater habitat and ecosystems are preserved indefinitely.

Western Australia's marine parks are zoned to ensure that users of the park don't impinge on each other's activities. Sanctuary zones are areas where visitors may 'look, but not touch'. No fishing of any kind is permitted in these areas, and all marine plants and animals are totally protected. Recreation zones exclude commercial activities but generally permit recreational activities such as fishing, provided that fishing regulations are followed. General use zones provide for commercial fishing and other uses that are consistent with conservation.

What are Marine Protected Areas?

Marine protected areas are coastal, estuarine or oceanic areas managed to conserve biodiversity. They range from small, highly protected areas that focus on species or community protection, to large multiple use areas that include complex linkages of ecosystems and habitats. Marine protected areas may include reefs, seagrass beds, rocky platforms, mangroves, estuarine waters, mudflats, salt marshes, shipwrecks, archaeological sites, and coastal and offshore areas of airspace, seabed and water.

Internationally, marine protected areas are considered an important tool for achieving conservation objectives in the marine environment.

Marine protected areas are one of the primary tools used, within a broader integrated coastal and marine management framework, for the conservation of biodiversity. Other tools used include fishery management strategies, fishing closure notifications, estuary and catchment management plans, conservation agreements, threatened species recovery plans, threat abatement plans and habitat protection plans.

An integrated system of marine protected areas will aim to contribute to, and take advantage of, all these measures to manage processes that may affect biodiversity within marine or estuarine environments.

The benefits of marine protected areas

Research has shown that marine protected areas can have positive effects on the ecosystems, habitats and species under protection and may also have other benefits including:

- improved fish stocks as a result of the protection of habitats critical for commercially and recreationally important species
- dispersal of larval recruits and genetic diversity to surrounding areas
- sites for education
- increasing community awareness and understanding of marine conservation issues
- provision of scientific reference sites for research and long-term monitoring.

Not all of these benefits will necessarily be experienced at every marine protected area. Internationally, there is support for well designed marine protected areas, as was shown by the signing of a scientific consensus statement, released earlier this year by 161 leading marine scientists and experts on marine reserves

Goals & principles for establishing an Australian (a New South Wales) representative system of Marine Protected Areas

The primary goal of the New South Wales (NSW) representative system of marine protected areas is to establish a comprehensive, adequate and representative system of marine protected areas that includes a full range of marine biodiversity at ecosystem levels (e.g. estuaries, coastal lakes, islands, rocky reefs), habitat levels (e.g. sponge gardens, mudflats and coral communities), and species levels (e.g. seabirds, fish, corals and turtles).

Principles for establishing a representative system of marine protected areas include:

Comprehensiveness: the degree to which the areas encompass the full range of marine biological/biophysical diversity and habitats found within and across all marine bioregions.

Adequacy: the capability of the areas to maintain biodiversity and ecological patterns and processes and other values, given both natural and human-induced disturbances.

Representativeness: the extent to which the areas selected for inclusion in the system reflect the range of biological/biophysical diversity known within the region.

A **precautionary** approach will be adopted in marine protected areas management, consistent with the principle for ecologically sustainable development and use. The absence of scientific certainty will not be used as a reason for postponing measures to establish or manage marine protected areas. If an activity is assessed as posing a risk of causing serious or irreversible impacts, or if there is insufficient information with which to assess fully and with certainty the magnitude and nature of impacts, decision making will be conservative and cautious.

Planning framework

The Interim Marine and Coastal Regionalisation for Australia report provides the general planning framework for developing the NSW Representative System of Marine Protected Areas. This identifies five marine bioregions and one marine province in NSW, and this has been used as the basis for establishing and managing the NSW Representative System of Marine Protected Areas (IMCRA Technical Group, 1998).

Managing Marine Protected Areas

Effective management of marine protected areas requires that those who use them are aware of, and understand the values of the areas, comply with the protection measures, and help ensure visitor enjoyment and safety. Management can be grouped into two broad categories:

- protection of conservation values and ecological processes
- sustainable use and public appreciation, understanding and enjoyment.

There is a range of tools used to plan and manage activities in marine protected areas. These include zoning and operational plans, permits and licences to regulate permitted activities, temporary closures and other relevant legislation that operate in conjunction with marine protected areas legislation.

Zoning

A zoning plan or Regulation is used within marine parks as a guide to management and use of an area, and operational plans detail the way the Marine Parks Authority manages each marine park and implements the zoning plan. There are four zones used to manage, protect and conserve marine parks.

Sanctuary zones allow for total protection of marine animals and plants and their habitat. Activities that involve harming any animal, plant or habitat are prohibited.

Habitat protection zones give protection to habitat, but allow limited taking of specified fish and plants. Only activities that do not have a significant impact on fish populations and have a negligible impact on other animals, plants and habitat are permitted. Line fishing, spearfishing and hand gathering are all permitted within a habitat protection zone.

General use zones allow multiple uses, as long as these are ecologically sustainable. Activities in general use zones are subject to generic regulations that apply across the whole park, including permits.

Special purpose zones are used when special management systems are required, including protection of Aboriginal and other cultural features, marine facilities, or for specific park management reasons.

Plans of management

The planning process for managing marine protected areas will be sufficiently flexible to suit local needs and conditions. Management plans may be developed for a marine protected area. Such plans will detail the management of the area over a given period, generally five years, and provide a framework for the development of work programs that meet the objectives of the area. They will include procedures that link management, research and compliance. Management plans are also important in developing community understanding about management intent.

Permits and licences

Permits and licences can be used to manage human use of the park and activities that have the potential to impact on marine life. The regulation of allowable activities within marine protected areas may require permits or licences.

Research & Monitoring

Research and monitoring is integral to marine protected areas management. Whenever possible, research and monitoring programs will be tailored to link closely with marine protected areas management. Integrating research expertise, and coordinating the research effort from various government agencies, universities and the local community will make the best use of available information.

Developing a suite of suitable indicators to measure the success of management is the first priority and will be influenced by what is being monitored and tested. Identification and management of threats will require information on cultural, social and economic values in marine environments. Research and monitoring of the resources, and of their human use, will also help provide for the sustainable use and public appreciation, understanding and enjoyment of marine protected areas. All research will adhere to guidelines for the ethical conduct of research in protected and environmentally sensitive areas.

Evaluation

Evaluating the effectiveness of marine protected areas in conserving marine biodiversity is recognized by the NSW Government as a priority. The overall ecological effectiveness of the NSW Representative System of Marine Protected Areas will depend largely on the design of the marine protected areas network and the management of each marine protected area.

The effectiveness of the NSW Representative System of Marine Protected Areas in meeting its goal will need to be assessed at a number of scales, ranging from significance at the national and international level down to State, bioregion levels and to the level of the individual marine protected area.

Community Involvement & Commitment

Opportunities for community participation, and input into management and education on the benefits of marine protected areas generate a sense of stewardship in the local community that will contribute to the success of the marine protected area.

To ensure effective management of marine protected areas, people who use them must be aware of and understand the values of the areas and comply with the management controls that protect those values. Therefore, there is *a need for an education strategy that highlights the impact of human activity on the marine environment*, the role of marine protected areas and the reason for management plans and special management arrangements.

Ongoing community and stakeholder participation in marine protected areas management is enhanced through advisory bodies representing key stakeholder groups and the community. These committees advise the relevant Ministers and marine protected areas agencies on, among other things:

- proposals for marine protected areas
- conservation of marine biodiversity and ecologically sustainable use within marine protected areas
- matters relating to the application of marine protected areas legislation
- planning and management of marine protected areas.

Indigenous participation and support is essential to effectively create, plan and manage marine protected areas. Indigenous representatives will normally be included on marine protected areas advisory committees, including the Marine Parks Advisory Council.

Malaysia Marine Parks - Conservation and management of coral reefs

Malaysia has national marine parks around 40 islands in Peninsular Malaysia and Labuan Federal Territory. These islands are grouped together into 5 Marine Park Centers for better management. They are:

- Pulau Payar Marine Park in Kedah (4 islands),
- Pulau Redang Marine Park in Terengganu (11 islands),
- Pulau Tioman Marine Park in Pahang (9 islands),
- Mersing Marine Park in Johor (13 islands), and
- Labuan Marine Park in Johor (13 islands).

In Eastern Malaysia, Sabah has three marine parks under the management of Sabah Parks. These are:

- the Tunku Abdul Rahman Park,
- Pulau Tiga, and
- the Turtle Islands (Selingaan, Bakkungan Kechil, and Gulisaan).

In addition to these national and state parks, Fisheries Protected Areas are established in P. Besar off Tanjung Tuan, Melka and Pulau Satang Besar, P. Talang Talang Besar, and P. Talang Talang Kecil in Sarawak.

Signs of progress

The establishment of marine parks in Malaysia came under a government directive to the Department of Fisheries Malaysia in 1983. Under this directive, the number of protected coral reefs has increased through the years.

In East Malaysia, the state government of Sabah declared the three marine parks. The Tunku Abdul Rahman Park (five islands) was declared in 1974, the Turtle Islands Park (three islands) in 1977, and Pulau Tiga in 1978. The Turtle Islands Park became part of the Turtle Islands Heritage Park, jointly managed by Malaysia and the Philippines (*See story on the Turtle Islands Heritage Protected Area*). Several islands off Semporna are being proposed to the state government for declaration as marine parks.

The objectives of the marine parks are to conserve and protect coral reefs for sustainable fisheries, tourism, and research. To achieve these objectives, exploitation of fish and other organisms, littering and polluting, and anchoring on the reefs are prohibited. As a result, tourism has vastly increased and tourists now routinely visit

these parks to snorkel and dive. For example, in the Marine Parks in Pulau Redang and Pulau Payar, the number of visitors was 4,375 in 1990. This number increased to 20,637 in 1993 and 125,040 in 1996. Tourism in these protected waters has provided unquantified spillover effects on the economy.

Fisheries officers manage research, educational field trips, and tourism activities in these parks with government funds. Since 1999, the Department of Fisheries began charging visitors an entrance fee (RM 5) to increase funding for the park management. Sabah Parks has also charged entrance fees since 1999 and began privatizing the management of amenities at the same time.

Coral Reefs of the South China Sea

Coral communities occur extensively around the offshore islands and archipelagos of the South China Sea. The largest area for reefs is probably the Paracel Shoals (Xisha Quandao) which lies to the south of Hainan. Fringing reefs occur around the atolls of the Spratley Islands (Nansha Qun dao) and Huangyan. The latter is an oceanic atoll with raised reefs, rising steeply from the sea bottom at 3500m. The Zhongsha reefs lie 183km south-east of the Paracel Shoals and comprise two large stolls: Zhongsha Atoll (53km in diameter) is a drowned atoll, whereas “Yellow Rock” Atoll (15km in diameter) is elevated to 1-1.5m above sea level. Coral diversity on the Zhongsha reefs is lower than in the Paracel Shoals because most of the reefs lie 7m below the surface. A true atoll, Pratas Reef (Dongsha), is located but 274km south of Hong Kong. *None of these reefs has been designated marine parks or reserves*.

The Corals Of Hoi Ha Wan

In s Hoi Ha Wan, as many as 36 species of hermatypic, constructional, corals have been recorded and of these 26 were encountered in a survey of ten stations scattered throughout the bay. Percentage coral cover of the near-shore sea bed ranged between 51-81%. A mean coral colony diameter of between 6.3-17.9cm has been recorded. Within the bay, there is a rather homogeneous community picture but with some evidence that inner bay sites are different from outer ones. Ten species are common, accounting for more than 10% f the cover at the different sites, that is, Leptastrea purpurea, Platygyra sinensis, Poites lobata, Lithophyllon cf. edwardsii, Montipora informis, Alveopora irregularis, Pavona decussata. Stylocoeniella guentheri, Cyphastrea serailia, Leptastrea pruinosa and Hydnophora exesa.

Platgyra sinensis and Pavona decussata are shallow water species while Alveopora irregularis, Stylocoeniella guentheri and Hydnophora exesa are deep water species. Cyphastrea serailia, C.microphthalma and Leptastrea purpurea occur

throughout the depth range. Such studies of Hong Kong corals reveal an essentially simple pattern of zonation with depth and distribution.

Compare the Hainan Island, the Spratley Island and Pratas Reef in South China Sea with Hoi Ha Wan in Hong Kong, Hoi Ha Wan is worth visiting since there are much more various kinds of coral reefs found. Its designation as a marine park has further enhanced its chance of a sustainable eco system. Hoi Ha Wan is indeed a much better coral colony when compare to other near shore coral colonies.

How does Hong Kong compare to Australia and Malaysia in marine preservation and conservation?

There is almost no comparison when you put the Australian marine parks and reserves with the Hong Kong marine parks. Australia, being the world's best marine preservation and conservation country, has a very comprehensive code on preserving and conserving its marine resources. Australia is a role model for many countries that want to preserve and conserve their marine resources and Malaysia is one of these countries. Malaysia is now making good progress in preserving and conserving its marine resources, whole developing her tourism as the same time. Hong Kong, being a toddler in marine preservation and conservation, has actually a good start. Due to its large population and small area, Hong Kong faces the problem of water pollution that most other countries do not have to. The designation of the four marine parks signifies an important step of the Hong Kong government's determination in marine preservation and conservation.

THE FUTURE

The successful management of Hong Kong' s marine parks relies on co-operation. In the end, it is hoped that such a policy achieves success and the value of coastal zone management, protection and conservation will be realized.

The Marine Parks Ordinance has allowed a key breakthrough to be made with regard to the future of Hong Kong's coastline and inshore waters and their resources. With the implicit acknowledgement in its successful passage through the Legislative and Executive Councils of the Hong Kong Government of the need for action, the survival of some components of the enormous diversity of local marine habitats and communities seems just a little more promising today than it did yesterday. Hoi Ha Wan Marine Park is critical to the success of any measures to protect some of Hong Kong's marine environment. It has to work to show that marine protection and conservation is not just possible but also desirable.

The last piece of the puzzle is WWF's educational Marine Life Centre. As the centre is situated at the north side of the small jetty, it provides opportunities for students to study the marine environment with minimum disruption to the flora and fauna within the bay area. Information concerning the importance of marine conservation will be displayed for students and members of the public. A film entitled, " Hoi Ha Wan – Bay Beneath the Sea", will be shown to visitors to the centre. This documentary will give non-diving visitors the chance to experience the marine life of Hoi Ha Wan throughout the year. Plans include a "touch and see" aquarium which will contain hardly intertidal animals that may be handled and examined by visitors. A "daylight reversal" aquarium will be another feature: here a tank will be artificially illuminated during the night and kept in dim lighting during the day. Many marine animals are nocturnal and their behavior is usually only observed by night divers. This display will allow these animals to be studied during their active phrase. A "tide tank" will be set up to enable intertidal animals to be studied at different levels of dessication without the need to rely on natural tides. Educational pamphlets, booklets, posters and other materials produced by WWF HK will also be available and there is the hope that guided snorkeling tours of corals may be provided eventually at the Hoi Ha Wan Marine Life Centre.

CONCLUSION

To get a thorough picture of Hoi Ha Wan; we have explored its present management, its threats and its developmental proposals. It is doubtless that people are starting to understand the vast ecological and economic values inside Hoi Ha Wan. With a view at the recently established management plan, we can see that the government has also made a commitment to work on the area of conversation. It is envisaged that the Hoi Ha Wan Marine Park will act as a demonstration "model" for the designation of further local marine protected areas.

With the opening of the International Marine Park in the near future, Hong Kong will be taking a big step towards the objective of raising public awareness. In general, we realize that there are more advantages than disadvantages should sustainable tourism is developed in Hoi Ha wan Marine Park. Yet, from the response of some locals, sustainable tourism may not be what they really want. A good consultation programme is therefore in urgent need. Such a consultation mechanism will allow a balance strived between the government and the locals. Maybe some of the work, including the conservation work and the management work, is not perfect. A good consultation scheme will again help correcting the errors.

The key of Hoi Ha Wan's success lies eventually in the people, the citizens of Hong Kong, to provide active support in conservation work of Hoi Ha Wan.

We hope that with understanding and appreciation of this invaluable natural heritage, the Hoi Ha Wan Marine Park will continue to flourish into the future generations of Hong Kong.

Sunset in the Hoi Ha Wan Marine Park

APPENDICES

1. **Corals**
2. **Mangroves**
3. **The Lime Kilns of Hoi Ha**
4. **History of Hoi Ha Wan**

1. Corals

What are corals?

Corals themselves are tiny animals which belong to the group *cnidaria* (the "c" is silent). Other cnidarians include hydras, jellyfish, and sea anemones. Corals are *sessile* animals, meaning they are not mobile but stay fixed in one place. They feed by reaching out with tentacles to catch prey such as small fish and planktonic animals. Corals live in colonies consisting of many individuals, each of which is called *polyp*. They secrete a hard calcium carbonate skeleton, which serves as a uniform base or *substrate* for the colony. The skeleton also provides protection, as the polyps can contract into the structure if predators approach. It is these hard skeletal structures that build up coral reefs over time. The calcium carbonate is secreted at the base of the polyps, so the living coral colony occurs at the surface of the skeletal structure, completely covering it. Calcium carbonate is continuously deposited by the living colony, adding to the size of the structure. Growth of these structures varies greatly, depending on the species of coral and environmental conditions-- ranging from 0.3 to 10 centimeters per year. Different species of coral build structures of various sizes and shapes ("brain corals," "fan corals," etc.), creating amazing diversity and complexity in the coral reef ecosystem. Various coral species tend to be segregated into characteristic zones on a reef, separated out by competition with other species and by environmental conditions.

Reef-forming corals are colonia animals, consisting of numerous individual poloyps that secrete and live upon their calcium carbonate skeleton. They have recently been characterized as “constructional” corals, denoting their ability to form a “bioherm”, which is an elevated structure composed of calcium carbonate, typically in shallow water. Each polyp of the colony resembles a small sea anemone with a cylindrical body and a ring of tentacles surrounding a month. Most are tiny (a few mm or less), for example, members of all Acroporidae, but others, such as some members of the Faviidae, have polyps more than 10 mm in diameter. Some of the sub-colonial species of the Dendrophyllidae, such as Tubastrea robusta, produce poyps up to 20 mm in diameter.

The position of each polyp upon the stony skeleton is marked by a circular ring, r calyx, into which radially project numerous silvers of limestone. These are the sclerosepta which serve to partition the basal portion of the polyp into numerous segments, like an organe. Tissue septa drape the sclerosepta, which they secrete. Membrances join adjacent polyps and also include some secretory cells which add calcium carbonate to the basal skeleton. A colony of a reef-forming coral may consist of thousands of poloyps lving upon a stony skeleton rising metres above the sea floor, and extending several metres in either length or diameter.

How do coral reefs formed?

Reef-builders are generally hard, colonial corals, their white limestone skeletons providing the main construction material. Since corals require warm, shallow, relatively clear water to grow, it is here, close to the shores of tropical islands and continents, that the reefs begin, At this stage they are referred to as fringing reefs. As sea level rises or the land slowly sinks, corals continue to survive by building upwards. This may result in the construction of a barrier reef some distance from the land with a protected lagoon between. Atolls are formed when a former island presently exists below today's sea level and the coral reef has extended upwards around its margin to create a surrounding reef enclosing a central lagoon.

Adult coral polyps have a form of sexual reproduction whereby, for most species, the male and female reproductive cells are released into the water where fertilization takes place. In a few, for example, species of Goniastrea, eggs and sperm are retained in the body cavity but eventually unite to form millions of small larvae, or planulae. The tiny planktonic planulare are free-swimming for between three and ninety days; they subsequently settle to form a single coral polyp which then divides repeatedly to eventually form a new colony. Some corals also reproduce asexually when pieces are broken off and are carried away during storms. If they end up in a suitable location, they can continue to grow and form a new colony.

Types of Corals found in Hoi Ha Wan

Peacock worm
Credit: WWF Hong Kong

The shrimp, *Palaemon pacificus*
Credit: John James

Clown Fish hides by its host in anemone.
Credit: Ng Lun Cheung

The cowry, *Cypraea arabica*
Credit: Brian Darvell

The Hermit Crab, *Dardanus crassimanus*
Credit: Rocky Chang

Parasicyonis actinostoloides
Credit: Michael Pitts

Sea orchin (Diadema setosum) on *Goniastrea aspera*
Credit: Tracy Clark

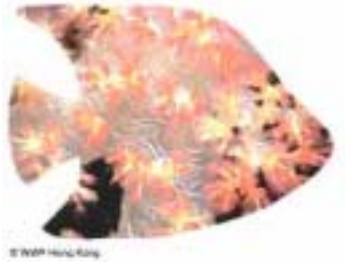
Polpys of the cup corals
Credit: Andy Domeracki

The cleaner shrimp, *Stenopis hispidus*
Credit: Y K Wong

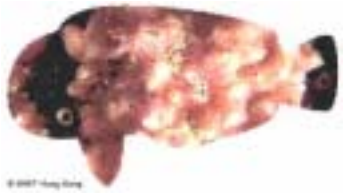
The spiny sea cucumber extends its oral plume to catch minute food particles.
Credit: David Hochstetter

Rock cod, *Sebasticus marmoratus*
Credit: Dennis Wong

Polyps of the soft coral
Credit: WWF Hong Kong

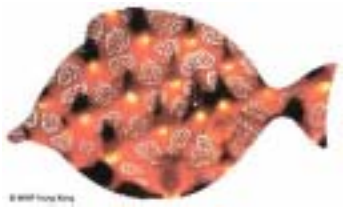


Soft corals
Credit: Joseph Poon



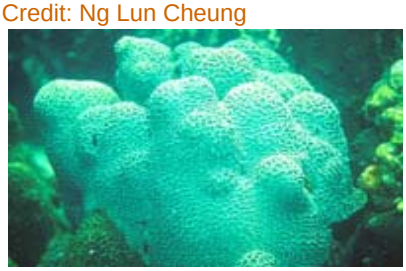
Sponges at Hoi Ha Wan.
Credit: Tam Chi Wai

Polyps of the soft coral
Credit: Ng Lun Cheung



A close-up of the plates of a starfish
Credit: Sheila Cooke

The colonial worm *Phoronis hippocrepia*
Credit: Tam Chi Wai



Platygyra sp.

In protected oceanic bays, such as Hoi Ha Wan, as many as 36 species of hermatypic, constructional, corals have been recorded and of these 26 were encountered in a survey of ten stations scattered throughout the bay. Percentage coral cover of the near-shore sea bed ranged between 51-81% and the number of species present at each station ranged from 6-18, with an average of 13. A mean coral colony diameter of between 6.3-17.9cm has been recorded. Within the bay, there is a rather homogeneous community picture but with some evidence that inner bay sites are different from outer ones. Ten species are common, accounting for more than 10% f the cover at the different sites, that is, Leptastrea purpurea, Platygyra sinensis, Poites lobata, Lithophyllon cf. edwardsii, Montipora informis, Alveopora irregularis, Pavona decussata. Stylocoeniella guentheri, Cyphastrea serailia, Leptastrea pruinosa and Hydnophora exesa.

Platgyra sinensis and Pavona decussata are shallow water species while Alveopora irregularis, Stylocoeniella guentheri and Hydnophora exesa are deep water species. Cyphastrea serailia, C.microphthalma and Leptastrea purpurea occur throughout the depth range. Such studies of Hong Kong corals reveal an essentially simple pattern of zonation with depth and distribution.

It is also known that within a short distance, local coral dominance may change, as with Lithophyllon cf.edwardsi-dominated patches of corals at Hoi Ha Wan. Coral interactions have also been investigated in Hong Kong and a dominance hierarchy produced which seems to help explain local distribution patterns. Six species, Acanthastrea sp., Lithophyllon cf. edwardsi, Goniopora columna, Hydnophora exesa, Echinophyllia aspera and Leptastrea purpurea, exert dominance over each other successively and a second group of corals such as Favia speciosa, Platygyra sinensis, Cyphastrea serailia, Favites pentagona, Pavona decussata, Acropora tumida and Stylocoeniella guentheri. These, in turn, dominate the acroporid Montipora informis and the poritides Alveopora irregularis and Porites lobata. Coral community structure at Hoi Ha thus seems to be determined by location, wave action, salinity, air and sea temperatures, depth, biotic interactions and pollution-related impacts.

2. Mangroves

What is Mangrove?

Mangrove is a unique inter-tidal wetland ecosystem found in sheltered tropical and subtropical shores, which receive inputs from regular tidal flushing and from freshwater streams and rivers.

It is characterized by high temperature, fluctuating salinity, alternating aerobic and anaerobic conditions, periodically wet and dry, unstable and shifting substratum.

Mangrove communities are made up of taxonomically diverse groups of plants and animals, and each community has its own distinctive flora and fauna species.

Adaptation of Mangroves

As mangrove trees grow in inter-tidal zone, their trunk and even their canopy may be covered by tidal water during high tide period. The plants there also face the risk of being washed away by seawater due to the unstable substratum.

However, mangrove trees have many special features for adapting to such difficult growing environment. These amazing structures make them different from the others.

Value of Mangroves

Provide diverse habitats, breeding sites and feeding grounds for a large variety of coastal species.

- Protection of shorelines from erosion due to currents, waves, wind and rain.
- Supply food and feed for fisheries and aqua-culture e.g. Gei wai in Mai Po.
- Fallen leaves of mangroves are important food for shrimps, crabs and fishes. The leaves also serve vital links in the wetland food web.
- Sources of food - Leaves and fruits of *Avicennia marina* can be used for honey and fodder production.
- Maintain the stability and ecological balance of coastal and marine ecosystems.

Different types of mangroves

3. The Lime Kilns of Hoi Ha

Historical Background:

About 100 years ago, four lime kilns were built by the villagers of Hoi Ha. Two were built separately near the tip of the headland which flank either side of the bay and are now in ruins. The two surviving kilns are located on the eastern shore of inner Hoi Ha Bay, close to the beach.

Construction Materials:

The lime kilns were constructed using beach stones and lined inside with crude bricks. The stones were arranged into a circular tower which was coated internally with mud, which bakes with burning, to create a hard, smooth, surface. The partition has a circular hole in the center and which, during operation, would have been covered by a grate thus holding the raw coral in the upper burning chamber separate from the lower firing chamber.

Contribution from the Hoi Ha Villagers:

Hoi Ha villagers contributed to the various tasks of lime production. As this needed a large number of workers, this led to the Hoi Ha villagers eventually having to negotiate with neighbouring villagers to lease additional land (wood) for fuel.

Collection of Coral:

Coral was collected from the sea nearby. Men, working from small boats, broke off pieces of coral from the seabed using a long pale. The coral heads were either picked up by divers or by means of a pair of metal tongs fixed on long bamboo poles. The upper, burning, chamber of the kiln was stacked with alternate layers of wood and straw fuel and coral (or shells) until it was filled. The mass was ignited from the firing chamber below and more fuel and coral added at the top. The arched entrance at the base and gaps between the stones helped in aerating the chambers. The burnt mixture of ash and lime would eventually drop into the bottom of the kiln assisted by tools operated through the entrance. It took several days of burning before the kiln was full of lime, at which time the operation would be stopped and the kiln left to cool before emptying. The raw material for lime production was mainly coral, unlike Yuen Long where oyster shells were used. The chemical constitution of the two is, however, the same, that is, calcium carbonate. On strong heating, calcium carbonate will decompose to form calcium oxide, and release carbon dioxide.

The lime and ash were then “slaked” in nearby pits. When water is added to quicklime, calcium hydroxide is produced.

The slaked lime was packed into sacks, loaded onto junks and transported either to Sai Kung, the regional centre for such trade, or to Aberdeen (Hong Kong Island) where it was sold to builders for housing and other construction project.

The lime kiln industry was once a prosperous local occupation and thrived in many coastal villages around Sai Kung such as Mang Keng Uk, Pak Sha O, Sheung Yiu, Wong King Tei, Chik Keung, Fu Yu Ha, Pak Tam Chung and Hoi Ha. The lime was used for agriculture, acting as neutralizer when added to local crop fields and fish ponds. It was also used to surface village brick-houses and was exported for the building industry. The demand for such low quality lime gradually declined, however, and the lime kilns of the Sai Kung Peninsula fell into disuse. The dramatic decline in the village population of the New Territories in the 1950's and 1960's also assisted in the decline of this industry, badly affect remote villages such as Hoi Ha.

4. History of Hoi Ha Wan

The original settlement of Hoi Ha Wan is not officially recorded. It is only known that the area was firstly occupied by a group of Hakka people. The Hoi Ha village was firstly established in 1811, when another group of Hakka settlers, sharing the family name Yung and originating from Hui-yang district in China, arrived here. Farming, lime burning and fishing remained the principal activities in Hoi Ha throughout the first half of this century. Documents have shown that the Yung family had to negotiate with the former settlers for rights to build houses and farm the land, eventually agreeing to perpetual fixed rent of 7696 copper cash each year. Today, the Yung family is still the dominant settlement in the Hoi Ha Village.

The Yung Ancestral Hall in the Hoi Ha Village

It seems likely that the main occupation of the first Yung family was agriculture. Land behind the village was cleared for wet rice farming and some vegetable production, providing sufficient food to meet basic needs. The sea was exploited for fish to supplement this diet and coral was collected and burned to make lime. Other essential provisions had to be obtained from Tai Po, the nearest market. Boats would have to provide regular access there, down Tolo Channel.

Despite the growing prosperity of Hoi Ha, mostly achieved through lime production, the village in 1890 had grown little. In that year there were still only ten families in the village with a total population of just 74 people. In the early 1900s, the village begun to grow, reaching a maximum population size.

Farming, lime burning and fishing remained the principal activities in Hoi Ha throughout the first half of this century. Village decline probably began in the late 1930s, however, when the junk from Aberdeen came less frequently to collect the lime and eventually ceased. The last lime kiln in the Sai Kung area closed in the mid 1960s after the Japanese invasion and occupation in Hong Kong. After the war, there was a steady exodus of young people from the village and the population of Hoi Ha fell dramatically. Some left to find works in urban areas while others emigrated to Europe and America. Lime burning and rice cultivation had already ceased. In the 1970s, only a handful of village houses left, lied abandoned in a state of decay.

Resettlement in the Hoi Ha Village started in the late 1980s when leisure local tourists and country loving expatriates started renting properties from the villagers. The designation of marine park have brought some resurgence in the fortunes of Hoi Ha as the beach and bay have become popular as a place for coral-watching and many forms of summer recreation.

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Tourists and residents in Hoi Ha Wan

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Team Members:

Mr. Au Yiu-Keung, Aaron
Mr. Ma King-Yan, Johnaphen
Miss. Yiu Wing-Yee, Winnie
Miss. Ng Yuet-Man, Natalie