



# Lamma Island Tour Commentary

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## **1. Introduction to Lamma Island**

Lamma Island is located in the southwest of Hong Kong Island, with an area of 13.55km<sup>2</sup>.

The other name of Lamma Island is Pok Liu Chau (船寮洲 or 博寮洲), because 'Pok' in Chinese means docking place, while 'Liu' means foreigners. The island was a famous docking place for foreigner ships in Tang and Song dynasties (1000-1200 years ago).

The eastern and western sides of Lamma Island are East Lamma Channel and West Lamma Channel respectively. Across the East Lamma Channel is the Southern District of Hong Kong Island, while Cheung Chau sits on the West Lamma Channel. South of Lamma is the Tam Kon archipelagos (擔杆群島), and further south is the vast South China Sea.

This is the third largest island in Hong Kong (following Lantau Island and Hong Kong Island).

Lamma Island is an off shore island which can only be accessed by boats. There are two ferry piers on Lamma Island, the Yung Shue Wan Ferry Pier, on the northwest Lamma Island, and the So Kwu Wan Ferry Pier on the southern tip of the island. Both piers are served by ferries going between Central Ferry Pier 4. .

Lamma is one of the more densely populated islands in Hong Kong. The island has about 6,000 residents and over 80% of them lives in Yung Shue Wan where flat and arable lands are available. Southern part of Lamma, So Kwu Wan, is also a main area for resident settlement. There is no car or truck on the island. Residents on the island mainly travel on foot or by bicycles.

Changes started to took place in Lamma Island in the 1940s. During the World War II, residents of Lamma Island fled for safer places in China. And in the 70's fisheries and agricultural practices were gradually replaced by industrial and commercial activities on the mainland. The younger generations in rural areas had moved out to the city for better opportunities. People on Lamma were no exception. Therefore many island residents have moved out and most of the agricultural lands are left abandoned. Most of the permanent residents on the islands are the elderly or retired people.

During the 1990s, the development of Hong Kong Electric power plant on a reclaimed area of Po Lo Tsui (菠蘿咀) brought in an influx of foreign engineers to Yung Shue Wan. Western restaurants, cafes, pubs and lounges have since established to cater to new needs. Today, expats with no association with the power plant continue to be attracted to Yung Shue Wan for quiet living environment and cheaper rental. The mix of expat living and traditional fishing village life creates a unique life style on Lamma Island.

Here in Lamma, Shum Wan is one of the five most important sites for archeology in Hong Kong. According to the archaeological findings, human settlement on the northern and eastern part of Lamma Island could be traced back to around 1600 BC, the Neolithic and Bronze Ages.

## **2. Geography of Lamma**

Hillside terrain (丘陵地貌) dominates the topography of Lamma Island. The highest point of the island is Mount Stenhouse (山地塘) which is 353 meter above sea level.

Lowlands and flatlands are found in Yung Shue Wan and So Kwu Wan where the major settlements are.

Stream running down from the eastern side of Lamma discharges its water at So Kwu Wan. Sea water and fresh water catchment, or the intertidal zone, creates a unique habitat in this area. The area is submerged during high tide period. During low tide period, the mudflat of So Kwu Wan will be exposed. This is the best time to explore the magnificent wildlife inhabit this environment, such as the mudskippers (彈塗魚) and fiddler crabs (招潮蟹).

## **3. Family Walk (Yung Shue Wan to So Kwu Wan)**

The Yung Shue Wan Family Walk is a 4.6 km trail running between Yung Shue Wan and So Kwu Wan. The trail is well-maintained and is suitable for hikers at all levels. The whole trail may take 1.5-3hr, depends on if the visitors stop frequently to take pictures.

Visitors can start at the northern section of the trail (Yung Shue Wan), and finish at the southern section (So Kwu Wan)

## **Yung Shue Wan**

Yung Shue Wan is the most popular and frequently visited area of Lamma Island. The Yung Shue Wan Pier is served by ferries that go between Central and Northern Lamma. There are many restaurants on the main road from the pier, and they serve western and traditional Chinese food. Seafood restaurants are also popular. There are also shops selling handicrafts, paintings and other souvenirs along the main street.

## **Lamma Wind**

Lamma Wind refers to a wind turbine constructed by Hong Kong Electric at Tai Ling (大嶺) of Lamma Island. This is also the first wind turbine in Hong Kong. The wind turbine has been in use since February 2006. It generates electricity from wind and provides clean and renewable energy to this part of the island.

Apart from the wind turbine, there is an exhibition centre and it is a good place to learn about renewable energy. Visitors can see real-time data on the performance of the wind turbine, including its wind velocity, power output, total amount of electricity generated and carbon dioxide reduced to date. The exhibition centre is open daily from 7am to 6pm (including Saturdays, Sundays and public holidays).

## **Views on East Lamma Channel**

East Lamma Channel separates Lamma Island from Hong Kong Island. Across the channel is the southern part of Hong Kong Island. You can get a good view of Aberdeen, Ap Lei Chau, Deep Water Bay, Stanley as well as the Peak. From here you can see how Hong Kong's high-rises sit side by side with the natural landscape of the territories.

West of Lamma Island is the West Lamma Channel, where Cheung Chau (長洲), He Ling Chau (喜靈洲), Chau Kong Island (周公島) and Lantau Island (大嶼山) are located.

## **Hung Sing Ye Bay (洪聖爺灣)**

Hung Sing Ye Bay lies on the southwestern coast of Lamma Island. This is one of the most popular beaches in Hong Kong. The beach is about 15-20 minutes walking distance from the Yue Shue Wan Pier. The easy access of the beach to and from the pier makes it a hot spot not only for island residents, but also island visitors from all over Hong Kong.

Hung Sing Ye Bay is now managed by Leisure and Cultural Services Department, Hong Kong SAR Government. There is life guard on duty during the summer season; shower and changing facilities are made available for swimmers.

### **Lo So Shing Beach (蘆鬚城泳灘)**

Lo So Shing Beach is another government-managed beach located in the middle of Lamma Island. Since it is located some 45 minutes of walking distance from So Kwu Bay Pier, this beach receives less visitors as compared with Hung Sing Ye Bay. One of the special features of Lo So Shing beach is a coastal plant called Pandanus (蘆鬚樹，又稱「露兜樹」), in fact, it is how this beach got its name .

There is a remnant of ancient limekilns in Lo So Shing which dates back to 420-907 AD.

### **Shek Pai Wan (石排灣)**

Shek Pai Wan is located at the southeastern part of Lamma Island. This is the longest sandy beach on the island. There are cliffs on one side of the beach and many boulders of different shapes scattering along the coast. Due to its physical appearance and rugged coastline, Shek Pai Wan is a good place for adventurous hikers to explore. The Hung Sing Temple at the bay shows that this area is also an important gathering ground for fishermen.

### **Old village school**

The old buildings on Lamma Island tell the history of Lamma. One of these is Mo Tat School (模達學校) which was constructed in 1932. This school was build by villagers of Mo Tai Village and its adjacent neighbours. Apart from Mo Tai Village, this school accepted students from Yung Shue Ha and Tung O Villages. However, as many of the people on Lamma Island had moved out in the 1970s, the school not longer takes student.

### **Lamma Quarry**

The Lamma Quarry is located on the north side of So Kwu Wan covering about 49 ha and stretching across 1km of coastline. Mining in the quarry stopped in the 1990s. Rehabilitation works had transformed the area in 1995. The design adopted an environmental and non-engineering approach, and it turned the barren quarry into a verdant site that has attracted numerous species of wildlife. A wetland area was established with reeds, small bushes and trees to encourage frogs, small birds,

lizards, dragonflies and other fauna to reoccupy the site. Other habitats include nesting sites for birds and underground tunnels for wildlife passing.

In addition, a man-made fresh water lake covering 4ha has been developed on the quarry floor. The lake was completed in 2002 and it is suitable for recreation purposes

### **Cave Kamikaze (神風洞)**

Cave Kamikaze is an artificial cave found along the coastal area between Lo So Shing and So Kwu Wan. It is believed that the cave was excavated by local people during the Second World War under the order of Japanese army. The cave was used by the Japanese army to house arms and ships for ambushing. There is signage outside the cave depicting the history of the cave.

### **Tin Hau Temple (天后廟)**

So Kwu Wan has a Tin Hau temple by the bay which is well over 150 years old. The temple is an important icon for the fishing village in Hong Kong. There are two antique burners inside, one of which was cast in the 6th year of Daoguang (道光) reign (1826) while the other was cast in the 21st year of Guangxu (光緒) reign (1895). The temple was burnt down in 2004, and the restoration work was funded by the warm-hearted worshippers and villagers. The temple is opened to public again.

Tin Hau is a Taoist goddess who is responsible for the well being of fishermen. Tin Hau was born in a fisherman's family, her name by birth was Lin Muoniang (林默娘) (960-987 AD). She was able to forecast the weather and often rescued fishermen from drowning. After her death she became the Taoist Goddess of the Sea. Fishermen pray to Tin Hau for good weather and good catch. There are more than 100 Tin Hau temples all over the territories and off-shore islands. There are two Tin Hau temples on Lamma Island, one is located at Luk Chau Village (eastern Lamma) and the other at So Kwu Wan.

### **So Kwu Wan (索罟灣)**

So Kwu Wan is located at the southern tip of Lamma Island. This area was fondly called Picnic Bay by the British. So Kwu Wan pier is served by ferries going between southern Lamma and Hong Kong Island. There are many seafood restaurants at So Kwu Wan waterfront, a favourite waterfront dining area in HK.

So Kwu Wan has an intertidal mudflat which is home to many wetland creatures. During the low tide period visitors can see the mudskippers and fiddler crabs foraging on the exposed mudflat. On the other hand, this is also the good time to see the water birds such as egrets and herons of the area.

Visitors can find a dessert stall selling the Tofu dessert and soy milk at the back street of Yung Shue Wan. Tofu Dessert is made of Tofu which is made by coagulating soy milk and pressing the resulting curds. This traditional dessert is a favourite among Hong Kong people. Many hikers will enjoy the chilled or hot dessert before or after the hike.

#### **4. Agriculture and Fishery activities**

##### **Fishery**

Lamma Island has always played an important role in fisheries in Hong Kong and the region. Apart from being surrounded by other islands and lying in well-protected harbour, Lamma Island also acts as a hub for fishermen to and from the Pearl River and South China Sea. Fishing practice has changed in recent years. Most fishermen no longer fish by fishing fleets, but use floating aquaculture setups to breed fish of better market value.

The floating aquaculture setup, or fish raft, is the largest of its kind in Hong Kong.. The privately owned fish raft can only be accessed with authorization from the owners. Visitors can have a good view of the fish rafts from the shore near Sok Kwu Wan Ferry Pier. These rafts not only are reminiscence of Hong Kong's olden days as a fish port, but also are important breeding ground of live seafood for restaurants on Lamma and other places in Hong Kong.

##### **Lamma Herboland (香草園)**

Alongside the Hung Sing Ye Bay lies the first organic herb farm in Hong Kong Hong, the Herboland. The farm was established in 2003. There are a great variety of herbs, teas and organic vegetable available in the farm. In addition, there are interpreters in the farm to introduce the concept of organic farming to visitors. Entry is free.

## **5. Festival celebrations on the island**

### **Da Jiu Festival**

Da Jiu (打醮) festival is a Taoist (道教) ceremony of sacrifices, and it is held by in almost all rural communities in Hong Kong, particularly those from fishermen and farmers decent. People will pay their respects to the Taoist gods in the ceremony, and to ask for custody. Despite the huge change of economic activities in the rural communities over the last few decades, Da Jiu Festival is still organized by the villagers. Different villages and communities have different schedules for Da Jiu Festival. Da Jiu festival is usually celebrated once every five or ten years, although one village in Hong Kong celebrates it once in 60 years (Sheung Shui). The next Da Jiu Festival on Lamma Island will be held in 2011.

### **Tin Hau Festival**

March 23<sup>rd</sup> of Chinese calendar is the birthday of Tin Hau, the goddess well respected by fishermen. On that day people will gather at the Tin Hau temples and carry out various ceremonies, such as burning incense sticks and performing lion dance. The villagers on Lamma Island celebrate Tin Hau Festival with great devotion.

## **6. Water and Electricity Supplies on Lamma**

In 1990, Hong Kong Electric Lamma Power Station started to supply electricity to Hong Kong Island, Lamma as well as Ap Lei Chau. The coal-fired generating units at Lamma Power Station are basically designed for 100% coal firing. To maintain the flexibility in fuel selection, capability for oil firing has been catered for.

There is no large river or lake on Lamma. Early settlers got their freshwater from the streams. With the increase in residents on the island, water supply becomes an important issue for the long term development of the island. The Water Supplies Department built a pair of submarine mains from Hong Kong Island which supplies tap water to Lamma Island since the middle of 1983.



## Supplementary Readings

### 7. Wildlife on Lamma Island

Birds are probably the most well-known wildlife in Hong Kong. Black Kite is commonly seen flying above Lamma Island. This bird is also one of the largest birds seen in Hong Kong. The wide wingspan and the slightly forked tail shape are Black Kite's field marks.

Along the coastal areas, one may encounter various egrets such as Great Egret (大白鷺), Little Egret (小白鷺) and Pacific Reef Egret (岩鷺). With a dark grey body, the Pacific Reef Egret is easily distinguishable from the other egrets which have white feathers. The Great Egret is the largest among the three, while the Little Egret is the smallest. The egrets feed by the sea and prey on small fish. Their presence indicates a healthy ecosystem which tells that food supply along the coastal area and wetland is adequate.

The other raptor that may soar over Lamma is the White-billed Sea Eagle (白腹海鵰). Among the four species of sea eagle recorded in China, this is the only sea eagle species bred in Hong Kong. It is one of the largest birds of prey in the region and they mainly prey on aquatic animals, such as fish, turtles and sea snakes. The bird has very distinctive features. Adult bird has white head, breast and belly, as well as underwing and tail. The upperparts are grey and the black underwing flight feathers contrast with the white coverts. The tail is short and wedge-shaped as in all sea eagles. The White-bellied Sea Eagle can easily be distinguished from other large birds in the sky because the eagle soars on thermals holding their wings in a 'V' shape, unlike other birds which usually hold them horizontally.

Spring to late summer is the time when a good variety of sea birds pass through Hong Kong waters. These sea birds are long distant migratory birds and some of them will also breed in Hong Kong during the summer time. Terns (燕鷗) are among the most elegant sea birds. They are white birds with very long and slender wings that help them to fly and glide for long distance at sea. The birds feed on small fish by bomb-diving into water, and snap the fish by the sharp beaks. The western and eastern Lamma Channels are good places to watch the terns. Whilst it is possible to see these magnificent birds during a hike, it is very easy to encounter groups of foraging terns at sea because they are fond of following fishing boats in search for the leaf-over.

Birds such as the Chinese Bulbul (白頭鶇), Red-whiskered Bulbul (紅耳鶇) and Oriental Magpie Robin (鶇鶇) will sing their melodic songs during spring time and summer time, when male birds are busy courting the females and to defend their nesting territories. On the other hand, during autumn and winter time, Lamma will receive a good number of migratory birds like many other places in Hong Kong. Warblers (鶯) and flycatchers (鶇) are insectivorous birds which feed on small insects hiding among the vegetation. Thrushes (鶇) are omnivorous birds which apart from insects and worms, they will also feed on the various fruits produced by local vegetations.

Some birds are more difficult to spot in the field. However, in spring and summer when these birds are calling for mates, bird calls will fill up Lamma Island. The Chinese Francolin (鷓鴣) is the easiest bird to be heard along the scrubland. The males will give a loud call as ‘come-to-the-peak, ha-ha’ that repeats at short intervals. Another group of birds which more often heard than seen is the cuckoos (杜鵑). Many of the cuckoos in Hong Kong are summer visitors that breed here. Their calls are actually love songs which the males use to seduce the females. One of the special features of the cuckoos is the breeding strategy used by some members. Some cuckoos species are brood parasites which females will lay their eggs in the nests of their hosts. The hosts will continue to incubate the egg(s) of the cuckoos, and will raise the chicks as if they are their own offspring. The most commonly heard and seen cuckoos in Hong Kong are the Koel (噪鶇), Large Hawk Cuckoo (鷹鶇) and Plaintive Cuckoo (八聲杜鵑).

In different time of the year, visitors can see different butterflies on Lamma Island. There are more than 240 species of butterflies recorded in Hong Kong. Butterflies are one of the most attractive groups of insect, and swallowtail butterflies (鳳蝶) and nymph butterflies (蛺蝶) are among the most colourful and active members. Some members can often be seen seeking nectars from the blooming flowers. Another common group of butterfly is the whites (粉蝶). Many members of the whites have larval stages feed on farm vegetables. They are therefore more common in farmland areas. Whilst the swallowtails, nymphs and the whites are conspicuous butterflies to see, the blues (灰蝶), skippers (弄蝶) and the browns (眼蝶) offer more challenges to insect-watchers. These butterflies are often smaller in size and duller in colours. Butterfly lovers will be amazed by the diversity of butterflies on the island.

Dragonflies (蜻蜓) and damselflies (豆娘) are also one of the best observed groups of insects in Hong Kong. Spring to autumn is the best time of the year to watch the dragonflies and damselflies in Hong Kong. Since the larval stage of dragonflies and damselflies live an aquatic life, streams, marshes and ponds are the best places to watch the colourful adults. Skimmers (灰蜻) are the most common and colorful of the dragonfly family on Lamma. They have two pairs of large, usually patterned, gossamer wings. The hind pair of wings is slightly larger than the forewings. The two pairs of wings are held flat and extend outward from the body when at rest. The abdomen is long and variously colored.

Damselflies, on the other hand, can be distinguished from dragonflies by the slenderer bodies and widely separated compound eyes. Most damselflies hold their two pairs of wings in a vertical position, which is different from dragonflies that hold them horizontally. Damselflies are often seen along streams and marshes where they perch on vegetation.

Apart from the various butterflies, dragonflies and damselflies, visitors to Lamma Island will also be amazed by the calls of the cicadas (蟬). Cicadas are insects with large eyes wide apart on the head and usually transparent, well-veined wings. Cicadas feed on tree saps using their long, sharp mouth parts which penetrate into the stems. Cicadas are best known for their distinctive calls or songs. Indeed, only male cicadas will sing and attract their potential mates. They do it by vibrating two thin membranes on the bellies. There are two species of cicada commonly seen on Lamma Island during the summer. The Spotted Black Cicada (黃點斑蟬) has conspicuous yellow spots on its wings, while the Large Brown Cicada (南蚱蟬) is a much larger species with transparent wings and a brownish body.

### **Romer's Tree frog**

Another wildlife highlight of Lamma Island is Hong Kong's endemic frog Romer's Tree Frog (盧氏小樹蛙). The Frog was named after the late J. D. Romer who first discovered it in a cave on Lamma Island in 1952. With an average snout-vent length of 1.5 - 2.5 cm, it is the smallest amphibian recorded in the territory. This is a frog endemic to Hong Kong and natural distributions of these frogs in the whole world are restricted to 4 islands in Hong Kong, including Lantau Island, Po Toi Island and Chek Lap Kok and Lamma Island. Due to their limited global distribution and rareness, the Romer's Tree Frog is a globally endangered species and is protected by Law of Hong

Kong, the Wild Animals Protection Ordinance. Secretive and illusive they may be, visitors to the island may be lucky enough to encounter this precious frog during the hike.

### **Green Turtle**

Shum Wan, on the southern part of Lamma Island and facing the vast South China Sea, is a known breeding ground for the globally endangered Green Turtle (綠海龜). The Green Turtle is the only specie of marine turtle that breeds in Hong Kong. The turtles have distinctive navigation behaviour in their nesting, breeding, development and reproduction sites. They are well-known for their fidelities to return to their birth place to lay eggs.

Sham Wan is the only existing nesting site for them in Hong Kong and the breeding site is about 5,100 m<sup>2</sup>. In order to protect this precious marine reptile, the Hong Kong Government has designated the sandy beach of Shum Wan as a restricted area. Every year from June 1 to October 31, begin the breeding season, access to the beach is restricted.

### **Finless Porpoise**

The western and eastern Lamma Channels are important foraging areas for one of the residential marine mammals in the Hong Kong water, the Finless Porpoise (江豚). The Finless Porpoise is one of the six porpoise species in the world. It is so named because it lacks a dorsal fin, which is often well developed in other dolphins and porpoises. Adult Finless Porpoises are a uniform light grey colour, while newborn calves are mostly black with grey around the dorsal ridge area, becoming fully grey after 4–6 months. Adult finless porpoises can grow to more than 1.55 m in length and up to 30–45 kg in weight. Together with the famous Chinese White Dolphin (中華白海豚), the Finless Porpoise often brings surprise and joyful moments to the passengers sailing on ferry or those who are taking a boat ride in the area.

### **Mudskipper and Fiddler Crab**

The intertidal zone of Shum Wan is the home to many specialized creatures such as the mudskippers (彈塗魚) and fiddler crabs (招潮蟹).

Fiddler crabs live along sea beaches and brackish inter-tidal mud flats, lagoons and swamps. The crabs are best known for the males having oversized claw which are used in courtship. Male's

smaller claw picks up a chunk of sediment and brings it to the mouth. Female fiddler crabs only have small claws which are used for feeding.

Mudskippers have specialized gills which can still breathe when temporarily out of water. The tiny holes on the mudflat are important sanctuaries for mudskippers and fiddler crabs. When disturbed or under threats, these animals will quickly retreat to these holes.

## **8. Vegetation on Lamma Island**

Grassland, shrubland and secondary woodland are the most commonly found vegetation s on the hillside of Lamma Island.

Grasslands are habitats subjected to regular human disturbances (mainly hill fire). These prevent natural plant succession and only the fast growing plants (mainly grasses) remain in an area. If hill fire and other human disturbance can be avoided, the grassland will eventually develop into shrubland in 10 years or so. If the shrubland is protected from hill fire long enough for further vegetation growth, it will eventually develop into a denser woodland called Secondary Woodland.

Green groups and the Agriculture, Fishery and Conservation Department have planted many trees on Lamma Island too. The trees planted can be divided into indigenous plants and introduced plants. Indigenous plants such as Chestnut oak (裂斗錐栗), Ivy Tree (鴨腳木), Bunch-like reevesia (梭羅樹) and Scarlet-Sterculia (假蘋婆) provide food for local wildlife, as well as offer nesting or resting places. On the other hand, introduced plants such as Earleaf acacia (耳果相思), Taiwan Acacia (台灣相思), Brisbane Box (紅膠木) and Horsetail Tree (木麻黃) survive on degraded soil and help protect the soil from further erosion.

Along villages and secondary woodland on Lamma Island, indigenous trees such as the figs (榕樹) can easily be distinguished from the others. The Chinese Banyan (細葉榕) is the best-known fig in Hong Kong for its wide distribution and the well-grown aerial roots. The aerial roots help the plant to absorb moisture in the air. Once landed, these aerial roots will become trunk which can support the tree. In addition, if the Chinese Banyan seedling germinated on other plant (the host), the development of the aerial roots will slowly entangle the host plant and eventually kill it. The growing space is then left for the strangler. This phenomenon is called strangling (絞殺) which is a

special adaptation for tropic plants with limited growing space in the forests.

Apart from the Chinese Banyan, the Common Red-stem (青果榕) is also widely distributed along wooded area on Lamma. The two species can easily be distinguished by the special fruits (known as 'syconia' 隱頭花果, 無花果) they produce. The former bears smaller, pinkish syconia while the later produces larger, green syconia that turn yellowish when ripe.

Figs are important food sources for local wildlife. Leaves of some figs are the sole food for some butterfly and moth larvae.. The seasonal flowering and fruiting patterns of the figs mean that they can act as year-round food source for animals and birds in Hong Kong.

Along the sandy shores of Lamma are beach plants such as the Beach Naupaka (草海桐), Cuban Bast (黃槿), Tow-leaves Morning Glory (馬鞍藤), Beach Vitex (白背蔓荊) and the Screw Pine (露兜樹). Beach Naupaka has rounded leaves that are 3–5 inches long, and notched at the tips and are bright green. The leaves are succulent and covered with thick wax that helps preserve water.

Cuban Bast (黃槿) is easy to recognize for it has distinctive heart-shape leaves. The plant bear has flowers almost all year round. The flowers are bright yellow and stands out from the foliage. Morning Glory (馬鞍藤) and Beach Vitex (白背蔓荊) produce purple flowers and are some of the most admirable beach plants on Lamma Island. The Screw Pine (露兜樹) is also commonly found. It produces large orange fruit with size comparable to a pine apple (hence its common name). It has long leaves which bear sharp spines along the edges and the underside.

These plants are tolerance to salty and loose soil. They protect the shore line from wave action and erosion. Moreover, they are also living and foraging habitats for other smaller creatures such as insects and crustaceans.

## **Mangroves**

Estuary of So Kwu Wan area is home to specialized wetland plants such as mangroves and other associated mangroves. Kandelia (秋茄) is the most widespread mangrove in the area. The flowering period of this specie is between May and July when the plants bloom star-shaped white flowers. In

Autumn, they usually bear with cone-like fruits, and their seeds germinate while still attached to the parent tree. Once germinated, the seedling grows and forms a propagule (a seedling ready to go, often called a 'dropper'), which can produce its own food via photosynthesis. When the dropper is mature after 3-6 months, it drops into mud and grows up as a new plant, or into water where it can then be transported great distances by sea water. The specialized reproduction mechanism of *Kandelia* is a classic example of how plant can adapt its living environment.