TREASURES OF THE DEEP

Surveying and Documenting the Underwater Heritage of Hong Kong

Hong Kong Underwater Heritage Group

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Supported by

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Front cover photograph of RMS *Queen Elizabeth* in Victoria Harbour taken July 1972 by Barry Loigman, M.D.

Contents

Introduction

This book is the result of a project 'Recording and Documenting the Underwater Heritage of Hong Kong'. It was implemented by a small group of Hong Kong residents (the authors) interested in revealing underwater cultural heritage sites and histories. It is the first time Hong Kong's underwater cultural heritage has been written up in a manner that is aimed at informing the Hong Kong community. We hope it generates an interest in this exciting and emerging topic. There is much to discover.

Hong Kong is recognised as an area worthy of developing underwater cultural heritage research since its history is inextricably linked to its development as one of the busiest ports in the world. It is also a very important harbour, being the only natural deep water between Shanghai and Singapore. This coast has been subjected to active hazards known to play a role in creating shipping casualties (e.g. pirates and typhoons), making it likely that there is much to uncover. It is also known that Hong Kong contains hundreds of archaeological sites dating back 7,000 years and many are located along the coast, and remains could be found underwater.

This project began in 2009 although it was in 2008 that the group first became involved through taking part in a number of the Nautical Archaeology Society (NAS) training programmes. They formed the Hong Kong Underwater Heritage Group (HKUHG) and successfully sought funding from the Lord Wilson Heritage Trust to implement this project. The field surveys were restricted to an area east of the Sai Kung Country Park for practical reasons (clearer water and less boat traffic) and in compliance with the conditions of a permit from the Antiquities and Monuments Office (AMO) of the Leisure and Cultural Services Department.

This book is a group effort, just like the underwater surveying that HKUHG carried out in obtaining information for the book's contents. It is not intended as a scholarly work but as an introduction to the very interesting topic of underwater cultural heritage or what others call maritime/marine archaeology. The book's contents are based on the aims and outcomes of the project that commenced in 2009, which were to:

- commence a systematic survey of the Hong Kong Special Administrative Region (HKSAR) through compilation of a database of sites and site surveys in order to highlight the value and potential of Hong Kong's extensive and diverse maritime history and its maritime and underwater cultural heritage landscape.

and

- as long-term residents of Hong Kong who treasure its unique culture and identity, we wanted to pass this information on to the rest of our community.

The book provides information on Hong Kong's Underwater Cultural Heritage Database (HKUCHD); different perspectives of Hong Kong's maritime connections; details about two underwater cultural heritage surveys; and future plans. We hope you enjoy it and would welcome your feedback, and involvement: hkuhgroup@gmail.com, http://www.hkuhgroup.com

Hong Kong Government's Involvement in Underwater Cultural Heritage

It was the passing of the *Environmental Impact Assessment Ordinance* in 1998 that was a crucial first step in the protection of underwater cultural heritage in Hong Kong. This legislation makes it mandatory for all designated projects to complete an Environmental Impact Assessment (EIA) which is held up for government and public scrutiny. Development can only proceed if an environmental permit is issued.

Until the introduction of this legislation in 1998, all underwater cultural heritage discoveries were accidentally made during construction work. In most countries the biggest threat to underwater cultural heritage is looting. In Hong Kong, it is the large number of infrastructure projects which disturb the seabed and often reclaim it completely.

The main aim of the *Environmental Impact Assessment Ordinance* is to avoid, minimise and control adverse impacts on the environment by designated projects. They include infrastructure projects such as reclamation, dredging, sewage and port facilities. It is a very transparent process: the Environmental Protection Department (EPD) website http://www.epd.gov.hk/epd/ holds information about project briefs, stages of development and has copies of all the EIA reports.

The government agency responsible for protecting Hong Kong's underwater cultural heritage is the Antiquities and Monuments Office (AMO).

They reacted to the new legislation by developing a set of 'Guidelines for Marine Archaeology'. These set out the standard methodology for completing what is called a Marine Archaeological Investigation (MAI).

It comprises:

- Baseline Review: a detailed review of documentary resources and existing information;
- Geophysical Survey: specialised survey equipment such as side scan sonar, multi beam sonar, magnetometer and seismic profiler are deployed to detect seabed objects. They provide 100% coverage of the seabed and can detect objects buried to about 30 metres (m);
- Diver Survey: if the geophysical survey locates any unidentified objects with archaeological potential an underwater survey is carried out;
- The results of all phases of work are combined into a final report which forms a section of the EIA for the project.

Underwater cultural heritage sites and objects are also protected under the *Antiquities and Monuments Ordinance 1976*, which declares sites older than 1800 to be owned by the Hong Kong government and for the discovery of a site or an antiquity to be reported to AMO.

Hong Kong Government's Involvement in Underwater Cultural Heritage

Since 1998 approximately 140 MAIs have been completed. They have generated an immense amount of seabed data which did not previously exist. However, no underwater cultural heritage sites have been located. This is in part associated with the small areas of seabed investigated and the limited 'development' led approach as compared to a 'research' focused investigation. The soft sediments of much of the seabed in Hong Kong means that many older artefacts will most likely be deeply buried and, while the geophysical equipment can discern these objects, it is not always easy to interpret them as cultural material.

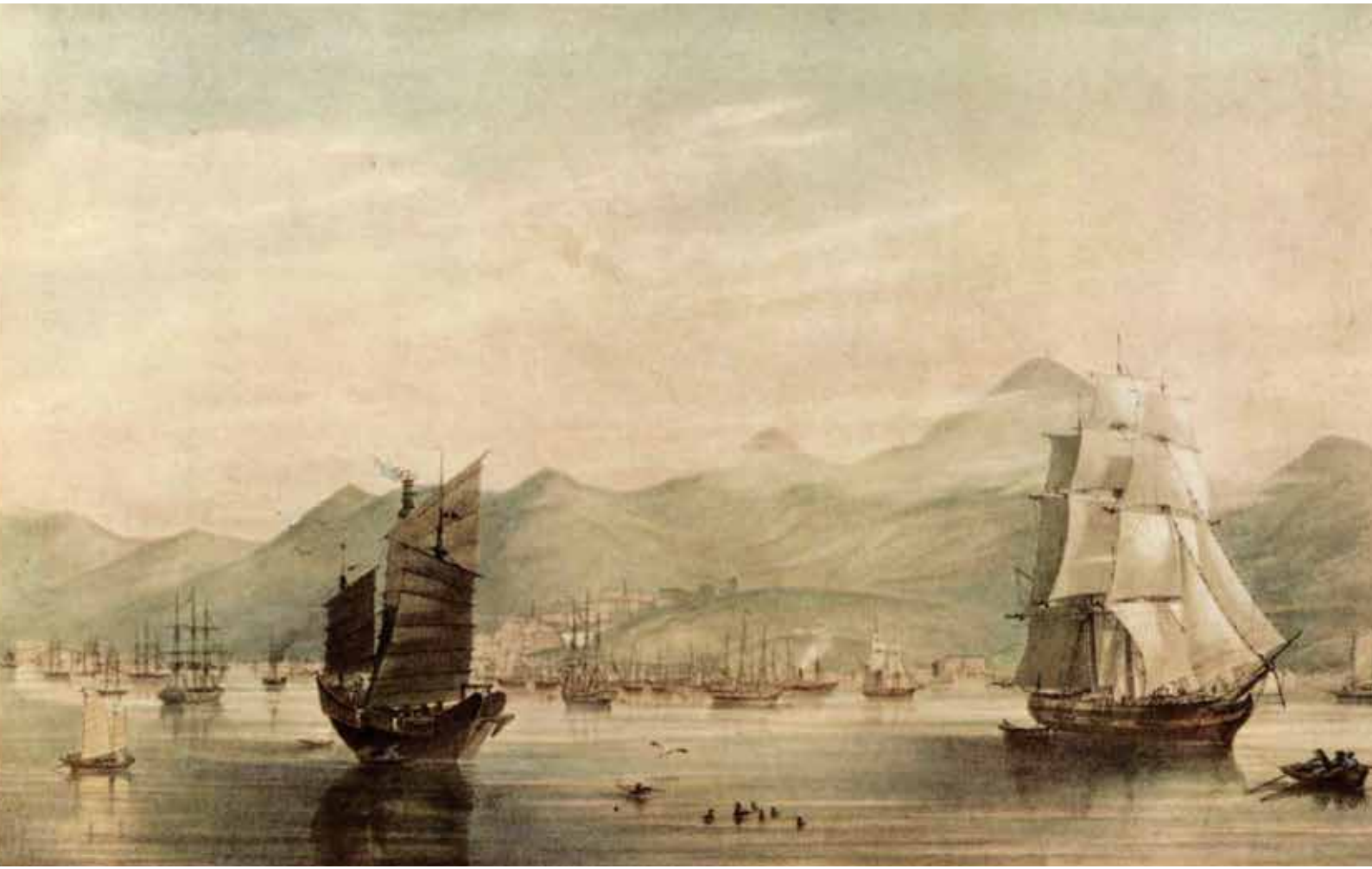
The 1998 legislation is amongst the most comprehensive in the world. It ensures that all marine archaeological investigations are carried out to high standards. In combination with the *Antiquities and Monuments Ordinance 1976* that stipulates the need for a *Licence to Excavate and Search for Antiquities*, Hong Kong has a framework for the protection of its underwater cultural heritage.

The establishment of the HKUHG in 2008 was the next most positive step forward in the development of marine archaeology in Hong Kong.

It also marks a welcome and long overdue continuation of the 1998 Lord Wilson Heritage Fund award to establish a framework for marine archaeology in Hong Kong. This work explored available research resources, raised key issues and made recommendations for future work. This included an inventory (database) which HKUHG are now developing. It also suggested the training of local expertise which has also been achieved through the HKUHG.

The formation of the HKUHG means that for first time, detailed desktop studies can be undertaken, leading to research focused field investigations. The database that has been created will be an extremely valuable research tool for future projects. By combining local desktop research with diver surveys and the acquisition of verbal records from local coastal and fishing communities, an ever-increasing research resource for Hong Kong is being initiated and should be maintained.

The combination of the work of the HKUHG and the existing legislative framework places Hong Kong in a very strong position with regard to the future protection and management of underwater cultural heritage. The EIA legislation prevents further destruction of archaeological remains during development.



Victoria. 1847. Coloured Lithograph. G.R. West. Source: The Chater Collection.

Setting the Scene

View of Hong Kong from Kowloon, 1841-2. Captain Stoddert, R.N. Engraving T. Allom. Source: The Chater Collection.

Setting the Scene

Hong Kong has a rich and diverse history related to the sea which is reflected in stories, legends, contemporary cultural practices, as well as sites and objects. The following broad themes were designed to assist in researching the intangible and tangible aspects of Hong Kong's maritime and underwater cultural heritage.

Settling Hong Kong

Material evidence from over 200 archaeological sites has recorded human occupation in Hong Kong extending back to the Neolithic Age at least 7,000 years ago. These archaeological sites are mainly located on the mainland coast and some of Hong Kong's 236 islands. Consequently, humans have long been exploiting the waters of Hong Kong for food. Similar findings can also be found nearby in Shenzhen, Dongguan, Zhuhai and Macau.

Hong Kong is located off the southeast coast of China. The inhabitants were noted for their skills in navigation on the water and their savagery in battle. They were known as the *Nan*Yue (南越) (Southern*Yue*) people of the Pearl River Basin, who practiced wet rice cultivation and were engaged in trade along the coast.

From the Tang Dynasty (618-907 CE) onwards, Tuen Mun had been an important transportation and military port at the mouth of the Pearl River in south China where a garrison of 2,000 troops was established in 736. Foreign merchants (such as Arabs, Indians and Persians) visited Tuen Mun before going on to Guangzhou (廣州), an important international trading port at the time, as well as stopping there on their departure to await for the favourable monsoon winds.

During the Song Dynasty/late Yuan Dynasty (mid-14th century) when the Mongols were conquering China, the war resulted in a massive migration towards southern China. Large groups of people from middle China migrated south to settle in the northeast region of Guangdong (廣東) Province and some of these migrants later moved further south to Hong Kong. This comprised the land dwelling Cantonese dialect group known as Punti (本地) people who settled mainly in the lowland flood plain areas and the Hakka dialect group known as Hakka people who settled in whatever land that had not been claimed by the Punti people. The other group is the water dwelling people also known as Hoklo who spoke a dialect of Fujian Province,

and a group referred to as the 'Boat Dwellers' who spoke a dialect of Cantonese. They specialized in a life on the water and were engaged in sea-faring, boat building and fishing. They lived on boats along the coast of Sai Kung, Tai Po, Cheung Chau, Tai O, Sha Tak Kok, Deep Bay, Castle Peak Bay, Kowloon City and the bays of outlying islands.

Maritime trade and transport

Small fishing craft were initially the most typical vessels that plied Hong Kong waters but by the Tang Dynasty, large seagoing junks capable of long-distance trading voyages had begun to appear. This was especially true of areas closer to the sprawling southern Chinese city of Guangzhou. It was here that two great systems of transportation met: the Pearl River network, along which barges and riverboats brought products from the hinterland to the markets along the coast; and the Maritime Silk Route, a vast international trading network that extended across the South China Sea and Indian Ocean. This lucrative trading route included Chinese ports as far north as Yangzhou and Ningbo and markets in Indonesia, India, the Persian Gulf region, East Africa and Europe. Arabs, Persians and Indians were among the many early visitors who sought treasures like tea, lead, gold and other minerals, porcelain, lacquer, musk, pearls and of course, silk.

Central 1847. Source: Chater Collection.

The first Europeans to visit the region in search of commercial opportunities were the Portuguese. They found a route to the East around the Cape of Good Hope in Africa in the late 15th century. Eventually granted permission to settle in Macao, an isolated but strategically located area at the western tip of the Pearl River peninsula, they quickly set about monopolising the trade route between China and Europe.

Setting the Scene

The British were less successful at establishing themselves in the region at first, but by the late 18th century they had built up a stronger presence, mostly trading English silver, cotton, woollens, furs, mechanical goods and gradually a steady flow of opium. Foreign trading in general, however, was conducted under unusually restrictive conditions. An insular attitude to trade, and a ban on the import, sale and use of opium in Guangzhou by the ruling Qing dynasty in 1796, led to increasing tensions between Britain and China. This ultimately led to two Opium Wars, the first of which saw Hong Kong Island ceded to the British in the Treaty of Nanking (Nanjing) in 1842, and from the second war, the tip of the Kowloon Peninsula was ceded in the Treaty of Peking (Beijing) in 1860.

Hong Kong was viewed by some as 'outstandingly unattractive'. It was famously described by the British Foreign Secretary Lord Palmerston as being 'a barren island with hardly a house upon it' but it was strategically located to the east of the Pearl River Delta. It also held the largest natural, sheltered deepwater harbour in the area, a fact that was as important then as it is now. British entrepreneurs moved quickly, establishing themselves on the island by building warehouses and buying up plots of land, and it wasn't long before other foreign traders followed suit.

Hong Kong became an *entrepôt* between China and the West. It developed as a trading post where goods were permitted to be exported and imported duty-free, allowing traders to make good profits. By the end of the 19th century it was a thriving port. Trade was briefly interrupted during World War II and after a UN embargo was imposed on China in the early 1950s, Hong Kong gradually became a centre of manufacturing and industry. The city re-established its status as an *entrepôt* in the second half of the 20th century, and is now the world's largest re-export centre, especially for products made in mainland China. In 2007, total trade amounted to over US$670 billion, and the city boasts infrastructure capable of receiving up to 220,000 large vessels a year. In 2009, the Hong Kong Shipping Registry passed the 40 million gross tonnage mark for the first time, and registered vessels included 949 cargo ships of all types, 256 tankers and a mixture of passenger vessels, tug boats, high speed craft and yachts.

Dried fish and drying shrimp.

Maritimes Industries

Fishing has been a major industry for many people living in Hong Kong. Many techniques and boats have been, and are still used in catching fish, although trawling is now banned. In the mid 1950s there were 6,160 registered junks in Hong Kong and an estimated 53,566 fisher-folk to be found mainly at places such as Aberdeen and Cheung Chau. In 1951 there were 100 mechanized junks; 750 in 1955; and in 2011 about 4,000 mechanized vessels (junks and other types) that fished inside and outside Hong Kong waters catching about 171,000 tonnes or 25% of the fish consumed in Hong Kong in 2011.

The salt industry was established in Hong Kong from the Han Dynasty (206 BCE). By the 9th century, Hong Kong was as a major salt production centre, becoming one of the thirteen most famous centres in China during the Southern Song Dynasty (南宋) (1127-1279 CE). Areas between west Kowloon and Kowloon Bay were used as salt production centres and the shallow bays and inlets of Deep Bay, Tuen Mun, Mirs Bay and Lantau were suitable places for salt production. The abandoned saltpans at Tai O are an historic reminder of the importance of the salt industry in the Hong Kong economy.

The waters from Tai Po to Lantau were a popular pearl hunting area from the Han Dynasty and by the 8th century Hong Kong waters were a major pearl harvesting region. Tolo Harbour in particular, was well known for pearls. Japanese investors established pearl farms in Tolo Harbour and Long Harbour in the 1950s. There were four pearl farms in Tolo Harbour and Long Harbour, located in Sham Chung, Lo Fu Wat, Ngau To Wan and Fu Long Wat.

Shipbuilding and Repair

This was a large industry for Hong Kong, commencing with local shipbuilders constructing

timber junks and sampans in bays such as Aberdeen and Stanley. By the 1850s there were over 50 junk building yards in operation. Hong Kong's annexation to the British brought about the construction of Western style timber vessels, then iron sailing and steam ships with the first Western style shipyard (Lamont Dock) built at Aberdeen in 1857. Large shipbuilding yards and dry docks developed from the 1860s on the Kowloon Peninsula, from Sham Shui Po to Hung Hom (Hong Kong Kowloon and Whampoa Dock Company), to Tseung Kwan O; and at Quarry Bay (Taikoo Dockyard in 1900) and Shau Kei Wan on Hong Kong Island. These and other dockyards built and repaired a range of vessels, including passenger ships, cargo carrying ships, ferries and warships up to about 10,000 tonnes. The Hong Kong Kowloon and Whampoa Dock and Taikoo Dockyard employed thousands of men until the 1970s and 1980s after which time the prime waterfront real estates were converted to housing estates. Today, Hong Kong maintains repair facilities with a number of large floating docks, and shipyards for building small vessels.

Hong Kong also developed a lime making industry from the Tang dynasty. Lime kilns in Hong Kong were located in coastal areas, reflecting the need for coral or shells as part of lime production. Places such as Yuen Long and Lantau Island became populated areas as a result of the lime industry. Settlements and lime kilns sprang up in many bays, inlets and valleys in these areas, creating a basis for the settlement patterns seen today. Associated with these industries was further deforestation, in order to obtain fuel for the lime kilns. By the 19th century, lime making was a significant industry in Hong Kong.

Piracy

As early as the Ming Dynasty (1368-1644 CE), Hong Kong was a notorious haunt for pirates but they were often paid little attention. With the development of sea trade routes, piracy, smuggling and parallel trading became active. During the 16th and 17th centuries, it was difficult to distinguish between these 'professions'. Some of the presently known maritime/ underwater cultural heritage sites in Hong Kong such as the forts, shipwrecks and cannons were the result of piracy and/or smuggling activities and the inevitable fighting.

Some pirates were born to be pirates but most often it was due to survival. In the Qing Dynasty (1644-1911 CE), Chinese military leader and

Setting the Scene

Tung Chung fort, Lantau.

'pirate' Zheng Chenggong (Koxinga), moved to Taiwan as a result of his fighting with the Manchus, and a section of his group moved to Hong Kong. Others were recruited by the Nguyễns brothers, the major rebels in the Vietnamese Civil War who actively sought pirates from Hong Kong and China to take care of Vietnam's coastal defense. One of the most famous pirates, Zheng Tsai was appointed as a naval general and brought his fellow pirates back to Hong Kong in the mid-18th century.

Piracy in the South China Sea including Hong Kong soon expanded and became organized in six qi (flags): red, yellow, blue, white, black and green. A most famous pirate in Hong Kong history, Cheung Po Tsai inherited the red qi from Zheng Yi who acquired pirates from his cousin Zheng Tsai in 1802. Cheung was the leader of 30,000 pirates with hundreds of boats operating from his base in the South China Sea, his robbery was rampant in Guangdong waters but he was also reputed to be a legendary Robin Hood only robbing the rich. It is possible that the best known underwater/coastal site in Hong Kong could be the Cheung Po Tsai cave on Cheung Chau which is promoted as where he hid treasure from Qing troops.

Traces of pirates and smuggler activities can be found in Hong Kong waters. In the Penny Bay's excavation carried out in 1992, over 10,000 pottery shards were found, and a few traced back to the Han Dynasty. It has been suggested that the finds represent either the remains of a trading post or a pirate's hide out. The bay would appear to be geographically ideal as a hide out, the adjacent hills are steep and protective and the anchorage is capable of holding many junks.

Fan Lau Fort (also known as the Chicken Wing Point) on Lantau Island is believed to be the earliest built military fort to safeguard the coastline against pirates and opium smugglers, dating back to 1729. The Qing government wanted to strengthen coastal defence works in Hong Kong not just to guard against attack from Zheng Chenggong and other pirates, but also to defend itself against the United Kingdom.

Weapon defence facilities were slowly building up in Hong Kong through the British (1841-1997) and Japanese occupations (1941-1945). The Kamikaze Caves in Lamma Island were built by the Japanese to hide explosives and Shinyo speedboats for suicide attacks on allied fleets. The Lei Yue Mun Fort was constructed during the British occupation of Hong Kong in 1887; the

Procession during Tin Hau's birthday celebration in Joss House Bay.

Model of a Chinese junk in Tin Hau Temple on Tap Mun.

Brennan Torpedo station was installed in 1890, which at that time was the world's most powerful underwater weapon. The fort was heavily armed to prevent the Japanese invasion in World War II but it was taken by the Japanese in 1941. In 1993, given the historical and architectural values of the fort, the government decided to convert it into the Museum of Coastal Defence.

Customs and Folklore

Customs, folklore and beliefs have always played a crucial role in Chinese communities, even to this day. This is especially true for communities in coastal regions whose livelihoods–and often lives–depended very much on the sea and its associated uncertainties. In the era before satellites, weather maps and sonar scans, sailors and fishers resorted to various deities for safe passage and rich harvests from the sea.

There are many sea gods and the most well known is Tin Hau (Heavenly Queen), also called Matsu (Mother-Ancestor). She was a real person called Lin Muoniang born in 960 during the Song Dynasty (960-1279 CE), who, after death, became the Goddess of the Sea and patron of fishermen. There are over 90 Tin Hau temples in Hong Kong, and the Tin Hau Festival, which takes place on the twenty third day of the third month in the Lunar

calendar, is one of the city's brightest, loudest and most enjoyable celebrations. Other places in southern China, Taiwan, and even Vietnam also hold Tin Hau in high regard and have hundreds of temples and even bigger celebrations than Hong Kong.

Another sea god worshipped in Hong Kong is Hung Shing, again a real life government official during the Tang Dynasty who could forecast the weather accurately, greatly contributing to the fishing industry in South China. The Hung Shing Festival falls on the thirteenth day of the second month in the Lunar calendar and is most notably celebrated in Kau Sai Chau, Sai Kung, where the Hung Shing Temple is a declared monument. Other lesser well-known sea gods in the Pearl River Delta include Pak Tai and Tam Kung.

One might wonder why they are still celebrated in today's cosmopolitan Hong Kong and it is interesting to note that these have evolved over time, and rather quickly, to be multi-purpose. Praying for security and fortune is still the central theme, but now more generally than just seafaring. They also serve as a platform for the display of wealth and social status by participating communities and in recent decades serve a tourism purpose where rituals are being revived or re-invented as social activities and tourist attractions. After all, these were created by the community to serve the needs of the community.

Other than rituals and activities, creativity also applies in other areas, and one amusing aspect is in the naming of places. A bay, an outcrop or a shallow reef can often take up names of various animal anatomy, such as Goat Horn Outcrop, Red Hawk Beak, Dog Head Rock, Duck Egg Pond, Conch Corner and Duck Tongue Island. In fact, the survey of the wreck site described later in this book was conducted not very far from Dragon Neck Tendon outcrop. There are also less flattering names, like Coffin Corner, Cow Dung Lake Bay and Horse Urine River (which is a pun for the word 'play' in Hakka dialect and has nothing to do with urine), which are truly unforgettable, or sometimes unbelievable, hence their use as a topic in a local TV pop quiz show. See also Kau Sai Chau rock in a later chapter for another example.

Caring for Underwater Cultural Heritage Sites

Shipwreck in Chuuk Lagoon, Micronesia.

The discussion on Hong Kong's rich and diverse history related to the sea draws attention to many different types of underwater cultural heritage sites. There are a number of ways that they can be cared for (managed), and a number of benefits this management can provide communities. This chapter explores these aspects.

Underwater cultural heritage sites can include prehistoric remains (artefacts and human remains), cave paintings, shipwrecks, submerged villages, natural remains associated with folklore, fishing facilities such as fish weirs, and aircraft. They are essentially the remains of human activity and they may relate to a 'water-based' activity such as fishing, or another activity, but are now located underwater, for example, villages flooded through the creation of reservoirs, or through rising sea level. Underwater sites can be very well preserved–in many cases better preserved than sites on land–and the information they contain may be the only available anywhere in the world.

Underwater cultural heritage sites are not just the domain of the maritime archaeologist or other government professional or academic. They are the legacy of our ancestors and they may still be used today. They may also still be owned by an individual, group or government, such as shipwrecks, or they may be owned and managed by a government on behalf of all its citizens. Underwater cultural heritage sites can have a number of values to different people and groups and their ongoing use and management is dependent on understanding these values. People dive sites in many places of the world to see first-hand their cultural heritage values and to see the spectacular natural beauty of the underwater world. Museums in Hong Kong and

Caring for Underwater Cultural Heritage Sites

Guangdong Maritime Silk Road Museum.

Ceramics recovered from the Nanhai No.1 shipwreck.

around the world display material recovered from underwater cultural heritage sites.

The United Nations has estimated that there could be three million shipwrecks lying on the ocean seabed. The oldest shipwreck located to date is the 3,300 years old Uluburun shipwreck in Turkey that has rewritten the history of ancient trade in the Mediterranean. In 2007, Chinese archaeologists recovered, in the most ambitious maritime archaeology project ever undertaken, the total recovery of a 800-year-old Song Dynasty shipwreck, named Nanhai No.1. The ship has been placed in a large water tank within a specially built museum, the 'Maritime Silk Road Museum' at Yangjiang, Guangdong Province. The ship and its cargo of an estimated 60,000 ceramics will be excavated while on show to the visitors of the museum. Other types of underwater cultural heritage sites such as the Australian Aboriginal fish traps could date back 40,000 years.

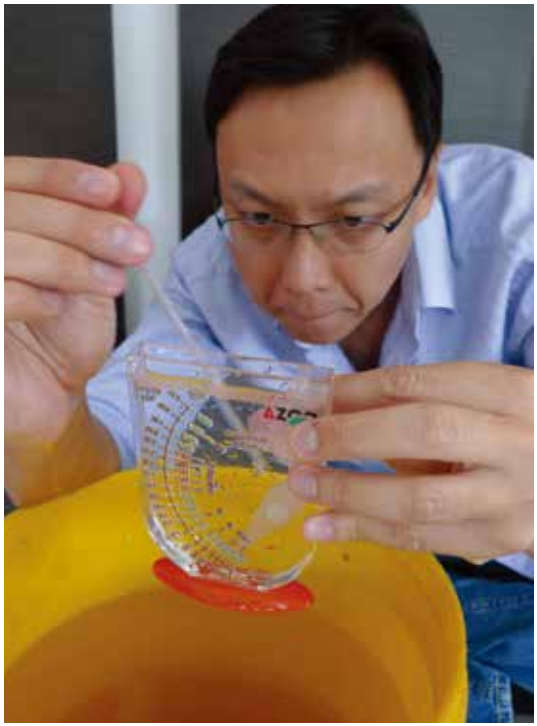
Management is inclusive of the full range of activities that best care for and promote the values of a site and can include research, protection, interpretation and educational activities. How underwater cultural heritage sites should be managed is a topic continually discussed around the world, particularly now with technologies that allow diving to thousands of metres deep and the potential damage that this can cause; an example being the shipwreck Titanic in almost 4km of water. An international agreement on the best practices for managing underwater cultural heritage sites, the UNESCO Convention on the Protection of Underwater Cultural Heritage 2001 has been formulated and 51 countries now (August 2015) use it as their management

framework. This Convention outlines a number of principles and practices including the prohibition of commercially exploiting sites, i.e. prohibiting artefacts to be bought or sold. It also recommends preserving sites *in situ* (as they currently exist) as a first practice. If a more appropriate form of management is determined through assessing the significance of a site, then other activities such as systematically recovering artefacts are justified provided they follow the best practices outlined in the Convention.

There are a number of benefits in effectively managing underwater cultural heritage sites. Foremost is that we are leaving something for our children, whether it be maintaining the site in its current state or systematically excavating it and displaying the material in a museum. This can provide cultural and economic benefits. Cultural information collected through an excavation and interpreted can be helpful in understanding how people lived, worked, fought and played, and why, and how they continue to interact with each other. Cultural tourism which can include diving shipwrecks, visiting other related sites and museums, is carried out by millions of people around the world providing substantial economic benefit to countries.

There are also many social benefits in effectively managing underwater cultural heritage sites. Many people still use underwater cultural heritage sites in their daily lives, such as the many fish traps located around the world. The best form of management in these cases is to work with the site owners as they continue to use them. This helps to keep the cultural practices alive, the 'intangible heritage' made up of the stories, legends, customs, perhaps even songs and dances that can be passed onto future generations. In a few of these cases it can be difficult to separate natural heritage–reefs, fish and coral for example–and the management of underwater cultural heritage needs to appreciate and include the value of this heritage.

In shipwreck sites, many different societies can be involved, for instance a Chinese ship may have been carrying a cargo from Thailand and Indonesia destined for Africa and with a crew of Arab sailors. Today, all these countries could still have an interest in the site and collectively manage the site for their benefit. The UNESCO Convention on the Protection of Underwater Cultural Heritage 2001 encourages and supports international cooperation in site management.



Marco Li monitoring the amount of salt in the ceramic washing water.

Conservation of sites and artefacts

Archaeologists can retrieve an interesting, large variety of artefacts from underwater sites which need conservation. After excavation, the finds are brought into a new, dry environment. This can cause many artefacts to deteriorate permanently unless properly treated and it is the role of conservation to stop this degradation.

To describe the basics of conservation, it is worth looking at three of the most common materials found–iron, wood and ceramics. Iron cannon and anchors are a familiar sight in many ports of the world and if you look closely you can probably see evidence of corrosion. Iron corrodes in the sea or in the earth mainly because of the presence of chlorides (salt). These entrapped chlorides cause damaging corrosion products or rust to form. Extracting the chlorides is necessary and it generally involves washing the artefact in a chemical solution for a considerable period of time.

After conservation, large iron artefacts are often stored outside and they should be painted to protect them from further corrosion. To achieve maximum protection, the paint that is used on

ships and oil rigs is recommended. These paints are different in many ways to conventional domestic paint and they have been used, for instance, in the conservation of the *Alexander Grantham* Fire Brigade ship, now in Tai Koo Shing, Hong Kong Island.

Timber floats, thus reducing the amount of timber found in shipwrecks. Under a microscope timber looks like a bundle of drinking straws (cells) packed tightly together. It floats as these straws are hollow. Another reason that limits the amount of timber to be found, is that to survive, the timber needs to be quickly covered in sand or mud which contains little oxygen and so limiting the amount of life forms that can eat it away.

Being located in water, the hollow timber cells fill with water. Allowing waterlogged timber to dry out will cause the cells to collapse and the once intact piece, perhaps with engravings or tool markings, will become a distorted mess of no archaeological value.

After excavation, there are many ways to treat waterlogged timber. One is freeze drying. The timber artefacts are pretreated in a solution of water and wax Poly Ethylene Glycol (PEG) and then frozen; the cells and the timber retain their shape including any surface markings. Larger artefacts are often soaked in, or sprayed, with a solution of hot water and PEG over a long time, perhaps more than 20 years. The outcome is the same as in freeze drying, the cells retain their shape and the timber is stabilized.

Over time, ceramics in seawater will absorb salt. Exposing them and letting them dry, allows salt crystals to form and eventual cracking of the surface. This problem is usually solved by soaking the ceramic in water (using progressively tap to distilled water) and letting the salts migrate into the water over a long time-period. The salt release can be measured and an end-point obtained, the ceramic would then considered to be stable.

The best conservation advice is to leave artefacts where they are found unless involved in a systematic excavation under the control of an archaeologist. Archaeology can be like solving a jigsaw puzzle, each artefact is like a piece of the jigsaw and it is made more difficult and less effective with damaged pieces.

If you find an underwater cultural heritage site or an artefact from a site, leave it *in situ*, and inform the Antiquities and Monuments Office (AMO) on 2208 4400 or email them at amo@lcsd.gov.hk or visit their website at http://www.amo.gov.hk/en/index.php

Hong Kong's Underwater Cultural Heritage Database

RMS Queen Elizabeth *in Victoria Harbour, photograph taken in July 1972 by Barry Loigman, M.D.*

The development of Hong Kong's Underwater Cultural Heritage Database (HKUCHD) was an important first step in understanding what underwater cultural heritage sites are located in Hong Kong. It was developed through an analysis and consolidation of the Wrecks Database obtained from the United Kingdom's Hydrographic Office (UKHO) in Taunton, England. The Hong Kong Marine Department maintains a very similar database of shipwrecks, obstructions and other underwater features that are considered to be navigation hazards. In most cases, little else is known about the sites, but in a few cases their identity is documented.

The specific details of 258 sites located in HKSAR were purchased from the UKHO. This information–a total of about nine fields for the HKUCHD–formed the basis of the Database and a further 40 fields of information were

added to make it more relevant as a heritage/ archaeological research and management tool. The HKUCHD now contains 49 fields of information. For example Site Data includes: site name, location information, water depth, if the site had been found and when, site description, surrounding environment, details of photographs. Historical Data includes: ship's name, owner, builder, where and when built, type of vessel, cargo, specifications including tonnage, length, breadth, depth, if salvaged, and sources of information. An additional 21 sites were added to the Database through this project and it is considered that many more 'new' sites are awaiting discovery. To view the Database go to: http://www.hkuhgroup.com

The Database includes all types of underwater cultural heritage sites. For example, the remains of the 1940-built, 83,000-ton *Queen Elizabeth* which was heavily salvaged but remaining structure can be found under a container terminal. In addition to shipwrecks, other potentially numerous sites include submerged villages (from the construction of dams), submerged prehistoric remains, natural features of traditional value, fish traps, and areas of seabed littered with ceramics.

Sites investigated/added to the Database include:

Port Island ceramic scatter

Port Island is an uninhabited island east of Plover Cove Country Park and was the focus of a field survey in May 2008. Local divers had first noticed this material during Open Water dive training.

Approximately 60-80 pieces of potentially significant artefacts were found scattered over an area of about 80m x 80m. These finds included blue-and-white porcelain shards, pottery shards and roof tile shards, all mostly household wares. A literature review indicated that Port Island was a good environment for temporary shelter or anchoring of small local vessels and it is probable that objects were dumped overboard by the vessels' users, possibly going back hundreds of years. The presence of roof tiles on the seabed may be fragments from the Port Island Tin Hau temple that were washed down into the bay.

Tap Mun Stone Lion

An investigation of an area off Tap Mun was initiated following discussions with a local diver who reported seeing two stone lions in the water. One stone lion and two bases were found; the whereabouts of the second stone lion is unknown.

Tin Hau stone lion off Tap Mun.

Further research revealed that there was no unanimous explanation as to why the stone lions were dumped. One explanation is that they were discarded from the Tap Mun Tin Hau Temple and replaced by a pair of new ones because the originals were not big or 'healthy-looking' enough to foster prosperity in Tap Mun. Another reason is related to feng shui: the villagers wanted to change the 'bad luck' they seemed to have befallen after the fatal accident of a promising young villager during a trip to the island hillside to sweep graves.

Kau Sai Chau rock.

Kau Sai Chau rock

During a field trip to a little fishing village in Kau Sai Chau Island, south east of Sai Kung, local residents shared interesting stories about the origins of the village's name. One resident attributed it to a narrow water channel that separates Kau Sai Chau from nearby Jin Island. Another legend is related to a large rock near Kau Sai Chau village that represents the muscle of a scallop (pronounced 'Kau' in Cantonese) joining the two shells represented by Kau Sai Chau and Jin Island, and is the origin of the name Kau Sai Chau.

Kau Sai Chau shipwreck

Wreck site number H245 (Kau Sai Chau wreck) was explored in association with a local maritime heritage enthusiast using a remote-controlled underwater camera and side-scan sonar. Video footage and stills of the site suggest that it is a fairly recent wreck but little else is known about the vessel or its origins. A sketch was also made during a very quick survey to investigate what it could be. This simple and quickly obtained site information is the type of information that can provide enough background on whether it warrants further work–in this case no further work was implemented due to it being a modern boat.

Cement Barge shipwreck

Wreck site number H223 was originally a ship named *Nan An*. The vessel was a container ship owned by the Hai An Shipping Company of Hong Kong and carrying bags of cement from Taiwan to Hong Kong. According to the UKHO records, the vessel ran aground off Tai Yue Ngam during foggy weather in 1965. It was salvaged but two sections of the lower hull remained, along with its weighty cement cargo. The site has become an impressive artificial reef and its relatively shallow depth (4-10 metres) makes it an accessible site for local divers.

USS Regulus *and salvage vessels.*

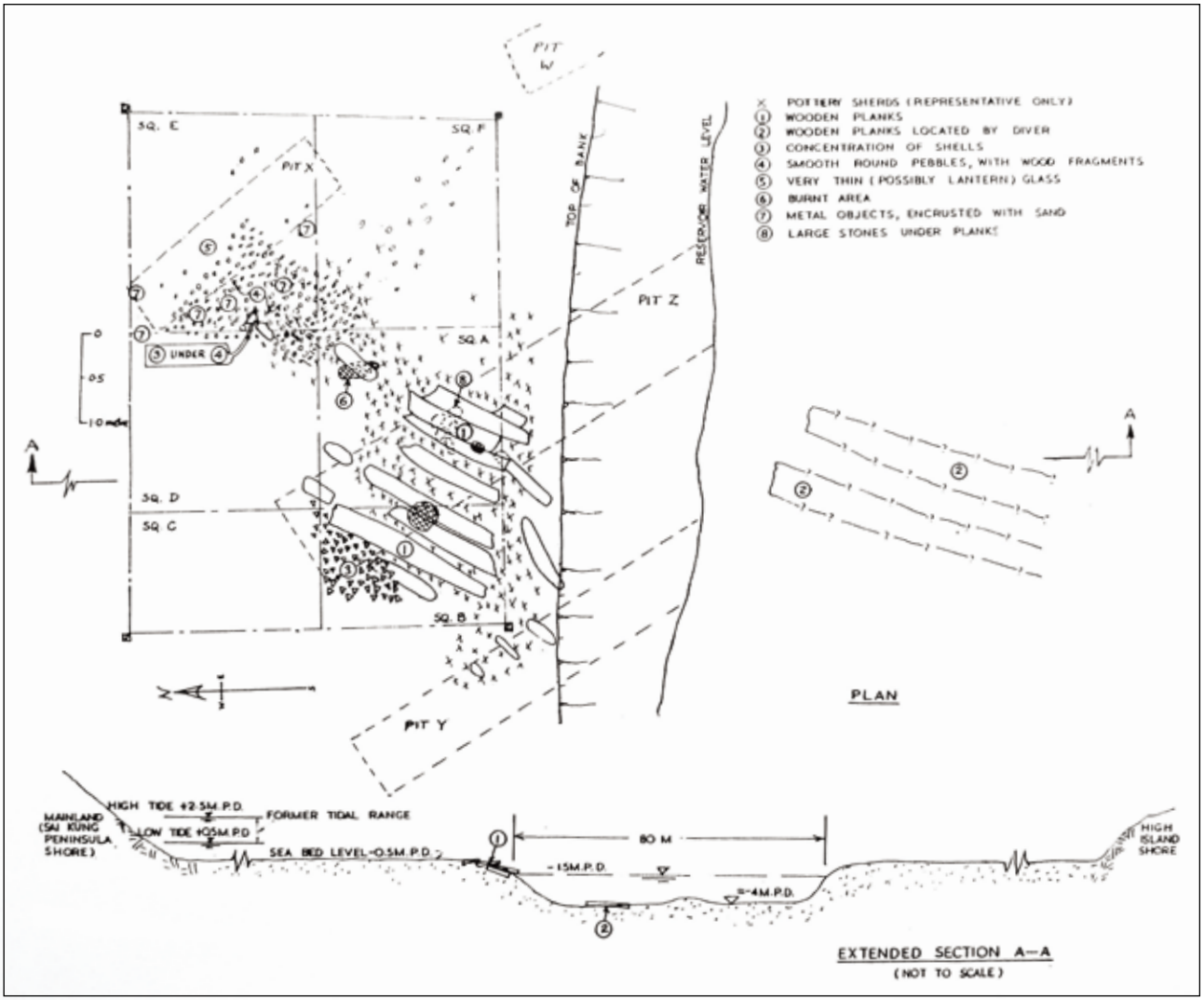
USS *Regulus*

This United States of America Navy (US Navy) vessel grounded on the rocks of Kau Yi Chau in August 1971 during Typhoon *Rose*. Built in Portland, Oregon in 1944, it was acquired by the US Navy in 1954, converted to a provisions store ship and served in the Vietnam War from 1966-1971. An inspection of the ship after grounding in 1971 found it to be damaged beyond economical repair. The entire superstructure was removed then the hull was cut in half and the two (bow and stern) sections removed from the rocks. The stern half of the vessel appears to be all that is remaining off Kau Yi Chau.

Ming Dynasty shipwreck in High Island reservoir

The wreck site is located near High Island which was subsequently dammed off, drained and filled with fresh water and now known as the High Island reservoir. An article appearing in the Ching Dao newspaper on 23 May 1974 reported the presence of rare and intact pottery from the Song dynasty. Naturally this attracted the interest of a number of people who were either curious or looking for souvenirs. Fortunately the site was soon rescued from unauthorized excavations by members of the Archaeological Society.

During the course of the excavations it was discovered that the vessel remains were of a junk that had caught fire before it sank with few parts of the hull surviving. Recovered pottery dated from the Song and Ming dynasties, while other artefacts came from across South East Asia with some originating possibly from India.



A plan view of the Ming Dynasty shipwreck. Source: Hong Kong Archaeology Society.

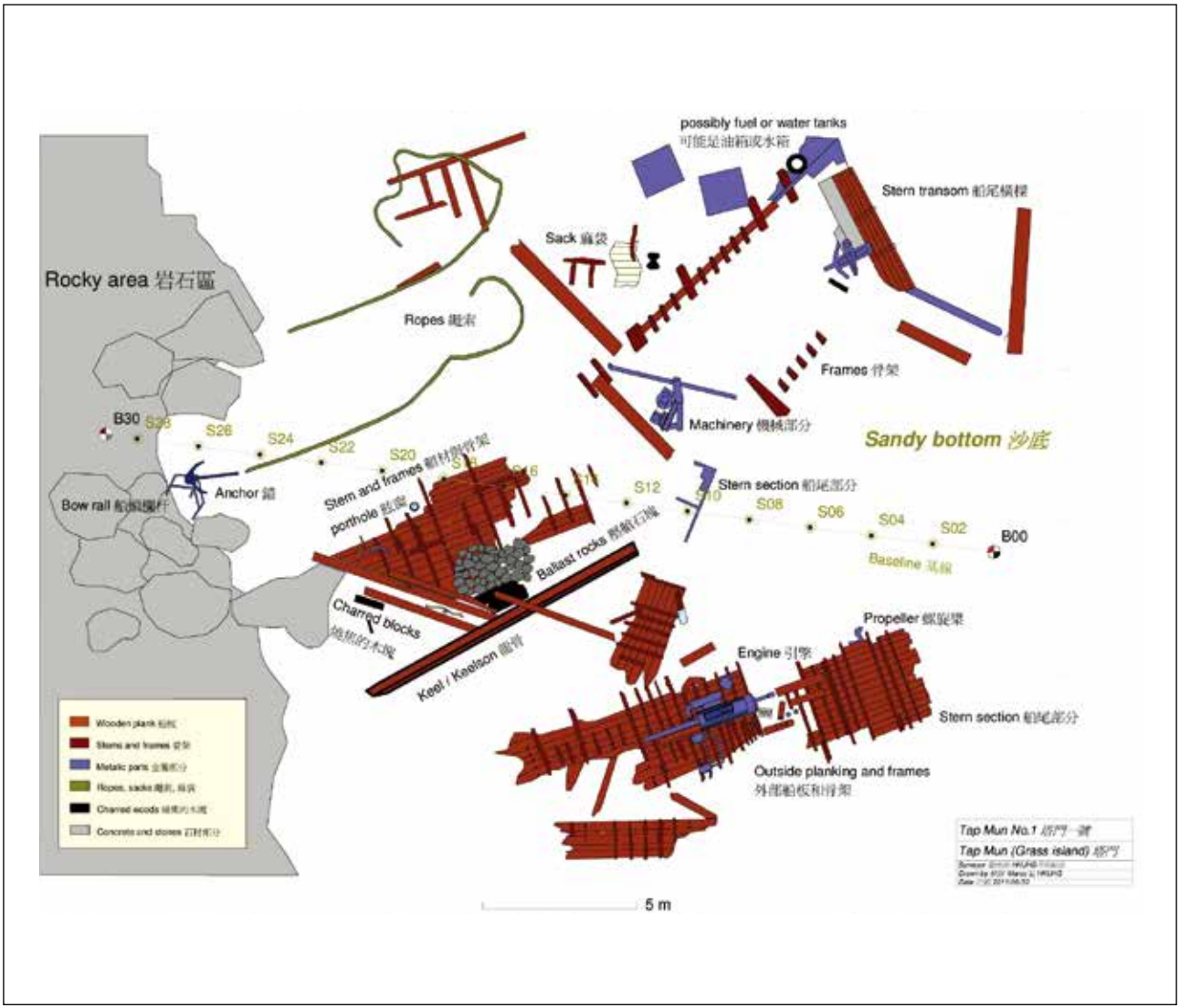
Display of Penny's Bay ceramics at the Hong Kong Heritage Discovery Centre.

Penny's Bay

Penny's Bay has been the subject of numerous archaeological excavations since its chance discovery by Dr James Hayes in 1975. He recognised that the thousands of pieces of pottery discovered belonged to an earlier period than that of the sites first recorded usage as a farm in the nineteenth century.

Penny's Bay was found to have high archaeological significance, as it is one of the few Ming Dynasty coastal sites so far located in Hong Kong. Artefacts found on the site indicate that it was first settled as early as the Neolithic period. Various reasons for the sites existence have been put forward. The most colourful being that it was used as a base for smuggling or piracy due to the fact that it is not visible from the normal sea-lanes off Lantau. Another idea is that it was simply a site for the repair and provision of ships as the bay is fed by a perennial stream.

The site has been described as a mystery, one which can no longer be solved as it was destroyed during the construction of a power station and then Disneyland.



The site plan of the 'mystery shipwreck'. Source: HKUHG.

A Mystery Shipwreck

A major aim of the project described in this book was to survey and document two different underwater site types. Considered as representing many of the sites contained in Hong Kong, the aim was to reveal the potential of these site types, and therefore the potential of conducting further surveys. A shipwreck and a non-shipwreck site were surveyed. They are the first underwater cultural heritage or maritime archaeological surveys to be conducted in Hong Kong.

Location

Documentary and oral history research and preliminary visits to a number of sites were conducted in order to identify the most desirable site for this survey. The main criteria for the site survey were accessibility, visibility, safety and containing shipwreck material that could be surveyed to provide an example of the many shipwrecks in Hong Kong.

This site was found in the UKHO Database and the Hong Kong Marine Department had accurately located it in April 2007, describing it as a dangerous wreck but with no further information. The HKUHG Database number is H271.

The general location is east of Tap Mun (Grass Island) which is about 30 km north east of Hong Kong Island and adjacent to the Sai Kung Country Park. Tap Mun was an acclaimed source of abalone back in the 1950s, fishermen harvested three to five catty (1 catty= 0.5 kg) just by diving in the water without scuba diving equipment. Unfortuntely, after years of exploitation, Tap Mun's abalone can no longer supply Hong Kong seafood markets. Tap Mun is also famous for grass! The island used to be covered with grass, hence its English name. The island was also a place to stop for many small boats travelling in and out of Hong Kong providing supplies such as gasoline and other necessities. The island had a population of about 2,000 but many people have moved to look for better working opportunities; those remaining operate small tourist related businesses like restaurants and souvenir stores. There is a Tin Hau Temple on the island; during major festivals like Kwun Yin Festival, fishers go to the temple to pray for safety and a good harvest.

Site Description and Environment

The depth of the site varies from 17m on the seabed to 15 m on the top of the shipwreck with up to 1m variation due to changes of tide.

A Mystery Shipwreck

Lydia Ho, Rick Chan and Grace Chow preparing to dive.

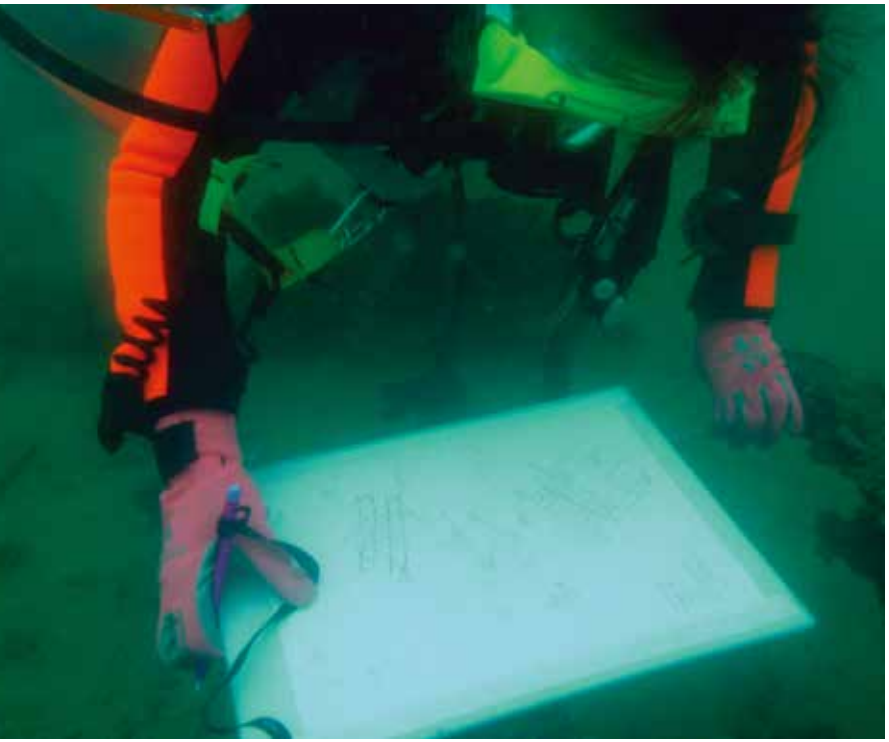
The sandy/silty seabed is reasonably flat but rises slightly from the stern to a rocky area forward of the bow. There is not an over abundance of marine fauna, groups of small fish and crabs were evident and a considerable quantity of sea urchins were scattered on the wreck. A few crab pots and a spear fisherman who visited the shipwreck on one day indicates that it is a focus for fishing and most likely the cause of the current small numbers of fish and other animals. The underwater visibility at the site is generally poor, between 1m to 2m, and when the current is running the water is very murky.

Survey process

The survey took place over two weekends: the 4-6 and 25-26 June 2011. Seven divers participated in the survey, each were tasked with different responsibilities. They included: setting the baseline, site sketching, tagging objects, taking measurements, and photography. Two teams of two or three divers worked in different sections of the shipwreck to minimise movement in the same area and stir up the sandy bottom. Total time spent underwater was about 70 hours; there being a dive instructor/supervisor on all dives. A 30m baseline was positioned approximately through the middle of the site and Global Position System (GPS) readings taken at the end points, B00 and B30. Survey work was carried out 20m either side of the baseline with the following tasks being performed.

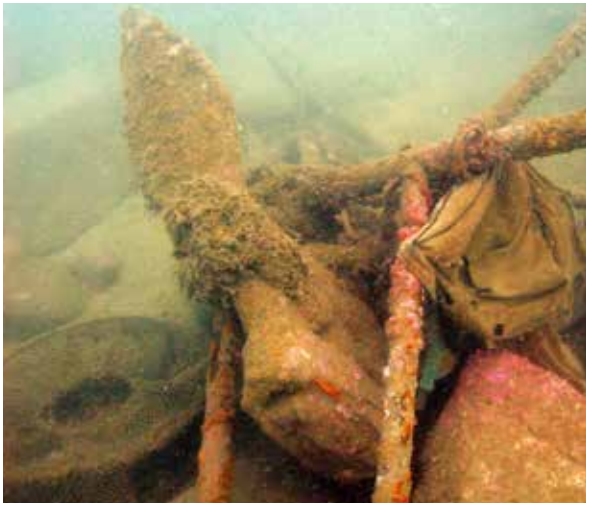
Sketching was carried out to provide a general idea of the orientation of the shipwreck and the location of the main features. Important features and objects (a few moveable) were marked with plastic tags, which were labeled with a number. At the end of the survey all the tags were recovered.

All the tagged features and objects were measured using baseline/offset method, and depth, in order to develop a site plan. A number of features were also measured using the three-dimensional (Site Recorder 4) method, which provided greater accuracy in the positioning of all the features and objects.



Peggy Wong measuring and recording the shipwreck.

Marco Li drawing the site plan from the underwater survey data.



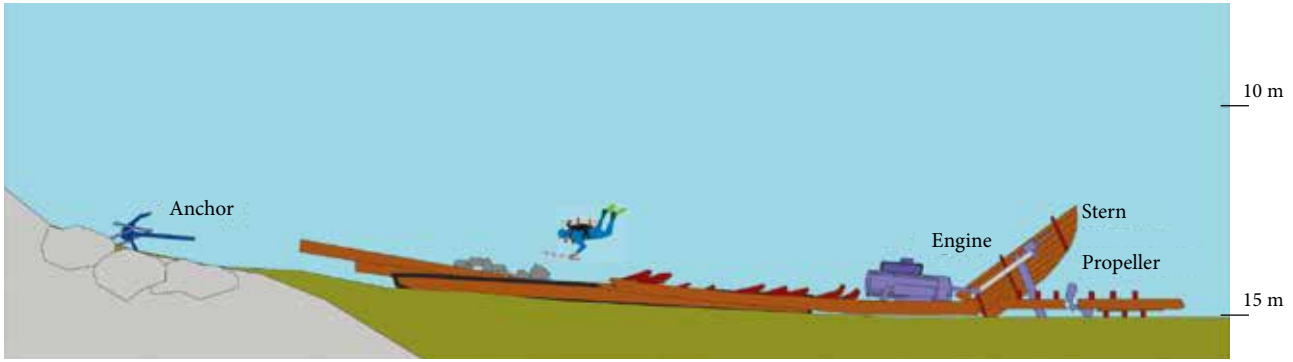
The vessel's anchor.

A blade of the vessel's propeller.

The stern of the vessel.

Timber hull frames.

A porthole found on the site.



An elevation view of the shipwreck.

The Site Recorder 4 computer program was used to produce three dimensional coordinates, site plan and elevation. With the input of the GPS coordinates, the plan was placed into a real-world coordinate system.

Photographs were taken of all the tagged features and objects as well as of the general site environment. It was not easy to take clear photographs. Two photo-mosaics were produced.

Outcomes

The following objects and features can be seen on the shipwreck site.

A steel anchor is located adjacent to baseline position S26. Rope can be found tangled around the anchor and the adjacent bow railing. It is also partially buried under loose rocks and is covered with a thin layer of concretion; a clue to the relatively short time the ship has been underwater.

An engine is located six metres south of baseline position S08 with clearly visible exhausts, shaft and piping. Most exposed areas were covered with concretion and no nameplates or labels that could identify it were discernible. The propeller shaft extending towards the east runs under the planking and appears to be still connected to the propeller, located south of baseline position S04. Other machinery found on the site includes a belt-driven device and criss-crossed steel piping.

Just one blade of the propeller was observed, with another blade or two hidden beneath the planking but visible from the side. The exposed blade measures 600mm in length and it is estimated the propeller is about 1500mm in diameter, suggesting that at least 900mm of sand has been deposited since the ship was wrecked. It is interesting that the propeller was not salvaged; perhaps it is only a copper-alloy coated propeller of limited value.

Mechanical equipment at the stern features a 150mm diameter shaft with mechanism for angular adjustments. Again, detailed features are covered with concretion and the size of the supporting structures suggests they are related to fish trawling equipment.

There are several major portions of timber frames and planking scattered on either side of the timber keel/keelson. These timbers do not survive well in the exposed tropical waters. A significant section of the frames, including half the keel/keelson is buried under the sand and is considered to be intact.

A Mystery Shipwreck

Peggy Wong recording the vessel's engine.

Just one piece of charred timber is shown in the site plan but many were found scattered across the site. In addition to individual pieces of timber, larger frames partly buried in the sand also show signs of being burnt, suggesting the ship was on fire before it sank. A few pieces almost look like charcoal, such as those shown in black near the ballast rocks in the site plan.

The material found on the shipwreck site, including the diesel engine, belt-driven machinery, anchor, rope, canvas with camouflage pattern, and trawler equipment indicates the ship was a fishing trawler that sank in recent times.

It was learnt from our boatmen and the villagers of Tap Mun that an accident occurred six or seven years ago, when a single trawler sank in the area, cause unknown.

There could be a number of scenarios for how the wreck site formed. From the layout of the widely distributed remains over a large area, the lack of electronics and other small movable objects and the charred wood, suggests the ship was heavily salvaged, burnt and broken up perhaps using explosives.

Summary

The shipwreck is the remains of a modern timber vessel and the outcomes illustrate what can be achieved through a relatively small amount of research, underwater surveying and documentation. If applied, and in greater detail to more and older sites, this work could reveal interesting aspects of Hong Kong's maritime history.

From the material remains there seems a lack of information to positively identify the ship, although further documentary research, oral histories, interviews with villagers on the island, fish pond operators or fishers may provide this

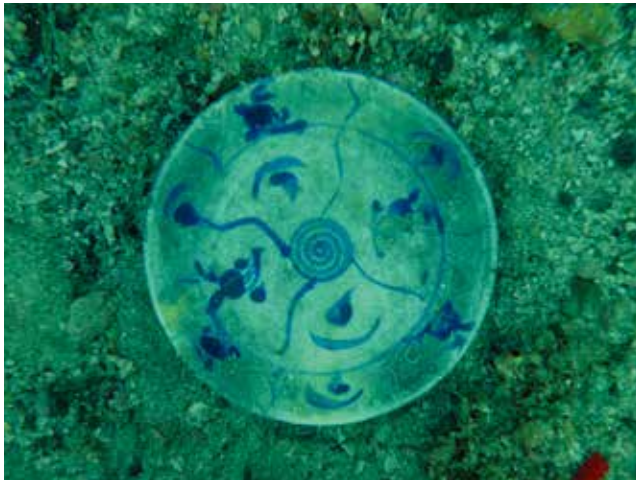
information. This archaeological survey is just the start, albeit a good start in helping to identify this site and perhaps its mysterious/interesting history. Why was it burnt? Why was it heavily salvaged and broken up?

This site would make a good ongoing training facility for underwater archaeology/cultural heritage management in Hong Kong. It provides an excellent training site for people who are interested in underwater survey, identification of ship's features and artefacts, and solving a mystery as to the origin of a shipwreck. More surveys may find other features and objects that that could help to reveal its identity. The site is also a good training ground for assessing site formation and conservation and preservation issues, including the conservation of marine flora and fauna given the pressure that this site is under from fishermen.

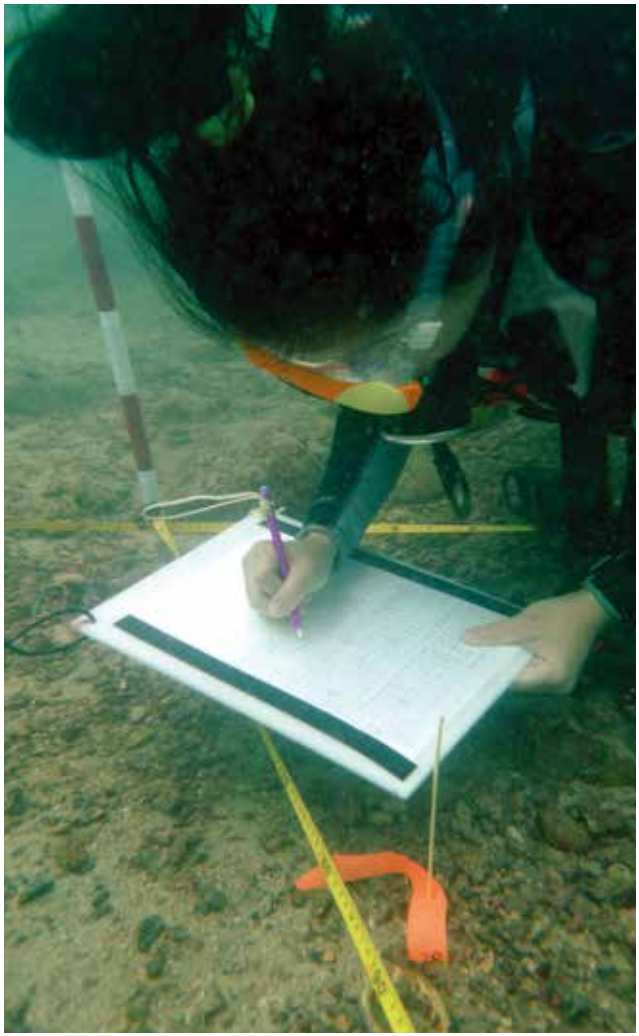
The site could also be considered as part of a tourist attraction for divers in conjunction with an underwater shipwrecks trail. This could complement other underwater sites of interests such as coral reefs and geological features to promote diving tours in Hong Kong. In fact, over the duration of the project, there were many enquiries from tour operators for interesting stories or histories to be included in their brochures and briefing packs for their boat tours. Many people were surprised when they first heard about the c. 300 shipwrecks in Hong Kong waters.

There is evidence that the wreck has become an artificial reef in an otherwise sandy bottom where corals are almost non-existent. Sea creatures have already made this shipwreck their home. These habitats are getting scarce as Hong Kong's seabed experiences 'desertification' caused through reclamation, construction and fish trawling (now banned). Ongoing construction will only result in more 'rising' of the seabed, and these wrecks should stand tall and form an oasis for Hong Kong's marine fauna and flora.

Ceramics were found scattered on the seabed and amongst rocks.



Small ceramic dish, from late Qing dynasty.



Lydia Ho recording the position of every artefact.

A Scatter of Ceramics

The non-wreck site survey was of a substantial quantity of artefacts scattered in the bay of an island in the Sai Kung Country Park region. The site was identified through discussion with a local dive operator with over 30 years diving experience in Hong Kong who had seen artefacts such as complete blue-and-white porcelain spoons, wine cups, bowls and plates.

As there are currently no active procedures used to protect the site. In order to avoid 'treasure hunters' collecting artefacts, the site location has not been revealed. The survey was implemented according to maritime archaeological best practices and all other site details are fully described.

Site Description and Environment

The site is located off the Sai Kung Country Park and can be accessed by departing from Hebe Haven Pier. It is approximately 100m off the island in what is a good sheltered anchorage. The seabed is flat and sandy and in about 6m of water. Fauna usually associated with corals were present but they were not extensive. Sand composition at the site ranges from an assortment of pebbles (in a variety of shapes, sizes and colours), as well as disintegrated shells and the remains of hard corals that have broken down over time.

Survey Process

The field surveys were conducted over 5 days from 12 to 17 June 2010. A total of 57 hours was spent working underwater. The aims of the survey were to record and document the remaining artefacts, their nature, extent, condition and value.

To do this, a preliminary visual dive inspection was conducted to identify the areas of high artefact concentrations. A 30m x 30m grid was established over one area and baseline/offset measurements recorded the location of each artefact within the grid. In addition, a north-south oriented 50m long baseline was established south of the grid area where another high artefact concentration area was identified.

All artefacts within the 30m x 30m grid and within about 5m of the baseline were marked with numbered tags, then offset measurements taken to record their location. This was followed up with the photographic recording of the tagged artefacts and a sketch plan indicating the location of each artefact. On completion of all the recording, the numbered tags and measured lines were recovered.

A Scatter of Ceramics

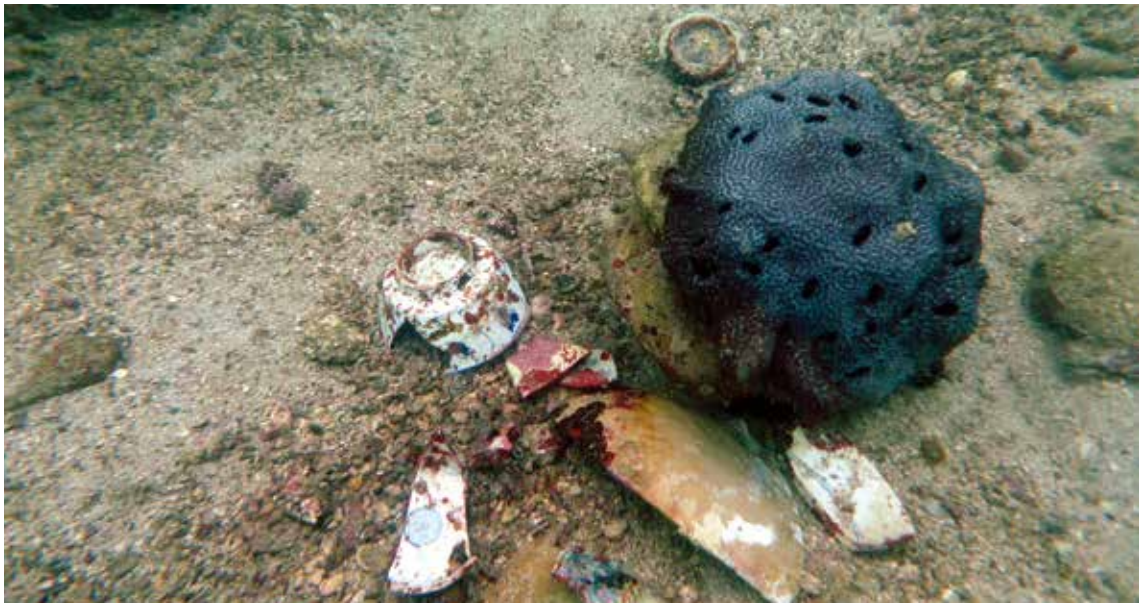
Artefact descriptions and preliminary dating in water was carried out but this proved difficult as many of the artefacts were partly covered with organic matter or concretion. Due to the substantial quantity of artefacts it was considered that a sample collection for further study was necessary. After consultation with the AMO, 22 artefacts (all blue-and white porcelain shards) were collected.

GPS readings were taken of the four corners of the grid and baseline end-points and a number of GPS readings were taken along the high tide mark of the shoreline to indicate the relative position of the artefacts to the shoreline. The computer program Site Recorder 4 was used to plot the measurements and the GPS points and to produce the site plan.

Artefact Conservation

After recovery, the artefacts were photographed, then placed in a container of sea water and a desalination process commenced soon after. The desalination process involves washing of the salt trapped in the porcelain in a very controlled manner to avoid a rapid release of salt and breaking away any surface markings, painting and glazing. The washing process commences with storing each artefact in a mixture of tap

Grace Chow, Lydia Ho and Peggy Wong cleaning the recovered ceramics.



Many artefacts broken and intact were found scattered on the seabed.

and sea water in its own separate container. Periodically the water is tested for an increase in the amount of salt being released from within the porcelain. Changes of the water are made when salt levels inhibit further release until the water being used is 100% distilled water and less than 5 parts per million of salt are recorded. This process has taken over 3 years for the recovered artefacts (see chart of salt release on the HKUHG website (http://www.hkuhgroup.com/).

An artefact register, a photographic record and selective drawings of the artefacts were conducted upon completion of the desalination process. The results will allow further study of the identifiable decorative patterns on the artefacts so as to determine their relative dating.

Outcomes

A total of 313 artefacts were recorded within the surveyed areas of approximately 1,400m^2. No similar artefacts were found on the beach when taking GPS readings along the shoreline.

Based on the underwater visual inspection of the artefacts, analysis of the photographic records and the samples collected, a total of 112 pieces of blue-and-white porcelain shards and 52 pieces of porcelain shards were recorded. These were predominantly bowl shards, but also other

'Double-happiness' design on broken bowl.

fragments, such as part of a spoon, a cup and a pot handle. Other types of artefacts included 147 pieces of pottery shards and 2 pieces of clay-made features of unknown use. A table listing all the 313 artefacts and a photographic record of the 22 collected artefacts is contained in the Surveying and Documenting report on the HKUHG website.

Porcelain shards

Identifiable decorative patterns on the porcelain shards include floral and fauna patterns and Chinese characters. A preliminary comparison study was conducted of the decorative patterns on the porcelain through a review of the artefacts displayed in the Hong Kong Heritage Discovery Centre. It was found that the decorative pattern of one porcelain cup is very similar to one displayed which is dated to the Qing dynasty. A few of the other shards have been tentatively dated to the mid-17th century.

Pottery shards

Of the 147 pottery shards recorded seven were covered with a brown glaze. Since no samples were collected, their dating is unknown but they are considered worthy of further investigation.

A literature review indicated that the adjacent island was not favourable for long-term human settlement at any point in time. This is supported by the fact that no land based archaeological finds have been identified on the island.

The artefacts identified on the seabed appear randomly distributed and comprise mainly local household wares with possibly some being export porcelain from the mid-17th century. These findings could suggest that a mixture of local and export-trade vessels made use of the bay. Although no geophysical survey or excavation of the sea-bed was conducted to confirm if more artefacts or shipwreck remains were buried, this

is most likely the case as according to the person who discovered the site, many more artefacts are exposed after a typhoon.

Summary

The underwater survey was successfully and safely completed and over 313 artefacts were recorded in a relatively small area within a bay that provides good shelter for vessels. Further research is being carried out on the 22 recovered ceramics and they are being considered for exhibition within the Hong Kong Maritime Museum (HKMM). A grant has been obtained from the LWHT to implement a second survey and recovery project in late 2013, in conjunction with an exhibition at the HKMM. This project was implemented in July 2014 and it explored the possibility that one or more shipwrecks are located there, given the site is along a well-travelled route of the South China coast. A report to AMO about this later work is being compiled. Although decrees were issued during the Ming and Qing dynasties forcing people to move at least 15-25 km away from the coast, this did not stop traders and pirates travelling the coast and using bays for anchorage. The origin of ceramics from the mid-17th century is an interesting issue and considered worthy of pursuing.

Grace Chow, Tammy Chan and Rick Chan enjoying a rest between dives.

A boat's eating and cooking wares on display at the Hong Kong Museum of History.

The Future for Underwater Cultural Heritage in Hong Kong

Hong Kong Island skyline at night.

This book has provided general and specific information about the type and number of underwater cultural heritage sites located in Hong Kong.

The approach used to compile information was to start with developing a database of sites which now stands at 279 and can be seen on the HKUHG website. It is considered that many more sites will be added to the database as further research is implemented.

The next step in the project was to implement site surveys given an aim was to illustrate the potential and value of underwater cultural heritage sites in Hong Kong. The eastern part of Hong Kong's waters (particularly the Sai Kung area) was selected in which to conduct the surveys as the water visibility was known to be good. Time was spent on the islands in this region talking to local residents and gaining additional site information.

Two sites, a shipwreck off Tap Mun, and an area of seabed containing many ceramics off another island in the Sai Kung region were surveyed and the results are documented in this book. The shipwreck is the remains of a modern timber vessel and the outcomes illustrate

what can be achieved through a relatively small amount of research, underwater surveying and documentation. If applied, and in greater detail to more and older sites, this work could reveal interesting aspects of Hong Kong's maritime history. The survey of the seabed containing the ceramics revealed many artefacts were located there. A few date back to possibly the late Ming or early Qing dynasties and given that many more ceramics were scattered throughout the bay, the site has the potential to reveal information about early trading in Hong Kong.

This book, a brochure, a technical report and the website form the major outcomes of this project. Another major outcome was that our technical and team skills in planning, researching, implementing and reporting on underwater cultural heritage activities were further developed.

Where to from here?

There are a number of projects that could take place that would help to reveal more about Hong Kong's history found underwater. A number of recommendations have been made in relation to the sites surveyed–a further investigation of the ceramic site was implemented in 2014. This could be expanded even further through examining areas of seabed off other, potentially more interesting islands. Ming dynasty and Song dynasty ceramics have been found underwater in Hong Kong (Penny's Bay and off High Island) and it would seem there is potential to find more sites like these.

Given this project's survey area was restricted to a part of Hong Kong's waters, the remaining area could be researched and sites selected for survey. Interesting sites are known to be located in this region and there could be many more. This region is at the mouth of the Pearl River where so much international trade has taken place from at least the 7th century. While diving in this area can be very problematic because of the poor visibility, there are other techniques that can be used to search and survey sites, of which some are used in the formal Marine Archaeology Investigation process described in the Introductory Chapter.

A number of historic themes were identified and expanded upon in this book. An aim of the themes was to provide a brief summary of important histories, particularly maritime histories that make Hong Kong unique and contribute to the cultural identity of the city and its people. The bustling port and commercial centre with its many tall buildings is renowned for its food and shopping but it has many

other unique attributes, which can be linked to its maritime setting and history. Further identification and development of these themes should help direct associated site and intangible heritage research and contribute to what makes Hong Kong a special place.

All of this work has the potential to raise awareness about the historical and archaeological value of underwater sites. Unfortunately, it could also raise an interest in the economic value of the material and possibly lead to sites being looted. Consideration needs to be given to implementing a more active, permanent underwater cultural heritage programme that could better manage underwater cultural heritage sites. Working with other government agencies, NGOs, businesses, museums, and groups such as the Hong Kong Underwater Heritage Group, this work could be effectively implemented at a reasonable and shared cost. It is found in many other countries that stakeholder and community engagement is a key to a successful and relevant underwater cultural heritage programme.

Another key to developing effective and successful underwater cultural heritage activities is by making it relevant to the place and its people. In addition to its unique setting at the mouth of the

Oral histories with local residents.

Pearl River and the potential to find very old sites related to the ceramic and silk trade, Hong Kong thrives on tourism and there would seem great potential in developing tourism related activities. In 2014, 54 million tourists visited Hong Kong and its many, many hotels were nearly full the year long. In 2014, the total tourism expenditure associated with inbound tourism was HK$360 million. A total of about 1600 licensed travel agents take tourists on a number of tours including to many of Hong Kong's 236 islands, Pearl River Delta tours, living cultural tours such as a Feng Shui tour, heritage tours, and nature tours. It would seem appropriate to either develop specific maritime and underwater cultural heritage tours or add this type of information to current tours. It may or may not incorporate diving–currently Hong Kong has about 50 dive

Sunset in Sai Kung West Country Park.

shops (c. 70,000 scuba divers) that could cater for this market. The tours could incorporate visits to islands to talk to local residents about the rich maritime traditions still evident and being used there, as well as to other maritime sites that are part of the broad heritage in which maritime and underwater cultural heritage sites are related. This could effectively be introduced through a virtual Maritime Heritage Trail of Hong Kong made available on a website.

The tours could also connect with Hong Kong's 49 museums, art galleries and resource centres, of which some have strong maritime and underwater cultural heritage themes, such as the Hong Kong Museum of History, Hong Kong Museum of Coastal Defence and the Hong Kong Maritime Museum in particular. Exhibitions that could be developed from what has been discussed in this book would link the intangible heritage (the stories, customs, traditions and cultural practices) with the tangible maritime and underwater cultural heritage sites, and the modern tourist wanting more adventure and a richer experience about what is uniquely Hong Kong.

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Victoria Harbour c. 1910, Photograph from Bain News Service. Source: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA, http://www.loc.gov/item/ggb2004009937/