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THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

FEASIBILITY STUDY OF FISHING TOURISM IN HONG KONG

THE HONG KONG POLYTECHNIC UNIVERSITY

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Final Report for the Feasibility Study of Fishing Tourism in Hong Kong

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Executive Summary

The Central Policy Unit (CPU) of the Hong Kong SAR Government has engaged The Hong Kong Polytechnic University’s School of Hotel & Tourism Management to conduct a study to explore the potential of developing fishing tourism in Hong Kong. The study has the following objectives:

(a) To review the state of play of the fishery and fishing community in Hong Kong.

(b) To examine the potential and feasibility of developing fishing as a commercial recreational activity for visitors to and local residents of Hong Kong.

(c) To study the tourism potential of developing the natural assets and heritage associated with the waters surrounding Hong Kong.

The study team reminds the reader that while the Hong Kong SAR Government has done what it can within the legal framework to make the fishery industry more sustainable, resolving larger issues relating to the state of the fisheries is beyond the scope of this study.

Information provided in this study comes from both a review of existing research reports, government websites and other data sources, plus interviews and on-line conversations with key stakeholders. Documentary research consists of reviews of relevant literature and studies conducted by others, desk research, examination of legislation concerning fishing, leisure fishing and water-based recreation activities, as well as tourism in Hong Kong. Site visits were made to a number of locales. A series of interviews was conducted with stakeholders, representatives from various government departments and other interested parties.

Fishing tourism can be broadly defined as tourism activities related to fishing and the cultural heritage activities associated with the fishing way of life. For the purpose of this study, a broad definition of tourism has been adopted that includes commercial recreation targeted at Hong Kong residents.
The fishing sector peaked in the 1960s but since the 1970s has entered decline. The population of commercial fishers has dropped steadily to about 7,600 in 2009 with a corresponding drop in fishing fleet to 3,660 vessels. At present, the total value of capture fisheries and marine fish culture production is about HK$2 billion. In addition mariculture, or fish farming practices generates about HK$141 million.

The fisheries resource is under threat from a number of sources, including loss of critical habitat due to reclamation, deterioration in water quality and development on the China mainland. Current levels of fishing efforts are unsustainable, and there is evidence that fishing-related impacts are sufficiently severe to produce the observed stock depletion even in the absence of development-related impacts.

A series of regulatory and non-regulatory measures have been introduced to try to conserve and rehabilitate the fishery. They have met with some limited success. In 2010, the Hong Kong SAR Government released the Report of the Committee on Sustainable Fisheries that recognized the local fisheries industry is an important cultural asset with a long history, has value and has some potential for sustainable economic development. Moreover, The Chief Executive’s Policy Address in October 2010 mentioned the Hong Kong SAR Government intentions to implement a basket of management measures to enhance the fisheries resource.

It is recognised, though, that the current number of commercial fishermen is not sustainable and that alternate employment opportunities need to be sought for them. Tourism has been identified as one such option. Two previous studies identified a number of barriers hindering the transition from fishing to tourism and concluded that tourism might provide employment for only a small percent of the currently at risk fishing community. This study came to the same conclusion. Part of the problem lies in the current legislation as framed in the Merchant Shipping (Local Vessels) Ordinance which prevents Class III vessels from carrying any passengers. Licensing, therefore, is one issue that is felt to be hindering the further development of this sector. Given the decline in the fishing sector, some fishers would like to modify their fishing vessels to allow passengers.
Tourism represents one of Hong Kong's major economic pillars, attracting some 29.5 million people in 2009. Hong Kong is seen as a sophisticated urban destination, with the suite of activities pursued reflecting this image. Women, particularly the young office ladies, represent an important visitor segment. The average length of stay is short at three to four days. Studies indicate that most people pre-plan their activities.

Generally, few tourists participate in nature-based tourism activities or visit remote areas and even fewer participate in water-based tourism. Typically, one percent or fewer of vacation overnight tourists visit the outer islands of Lamma and Cheung Chau, with a similarly small number of individuals interested in visiting the remote remnant fishing village of Tai O and Sai Kung. Discussions with industry leaders indicate that the commercial market is extremely small. Fishing tourism is virtually nonexistent in Hong Kong and is not seen as a priority development area. Many reasons exist, including the lack of product and most importantly, incompatibility with Hong Kong’s dominant destination image.

Overall, therefore, the potential tourism market to engage in water-based eco-cultural- or nature-based tourism activities is limited. It may be a secondary or supplementary activity for some tourists and may be a primary activity for a small number of special-interest tourists. However, it will be difficult to target this market effectively.

Instead, the local market holds far greater potential. More than 40% the population participates in recreational / sports activities. Hong Kong’s affluent are taking their leisure seriously, with substantial increases in the number of participants. Hong Kong’s country parks attract an estimated 13 million visitors. In addition, about 220,000 visits are made to marine parks each year.

Water-based recreation is growing in popularity and involves four major types of commercial activities which may provide some alternate employment to the fishing sector:

- weekend sightseeing tours targeted at the local community and housing estates
- independently organized cruises and junk trips including banana boat rides, lunch, etc
- scuba diving
- fishing.

The study team identified a number of cases where successful transition from fishing to water-based tourism has occurred or was occurring. Examples include:

- Sai Kung which has largely made the transition from commercial fishing to water-based recreation.
- The Northeast New Territories which has great potential, but a number of structural barriers to overcome.
- The Hong Kong National Geopark which holds potential for growth and is currently the subject of a number of pilot projects.
- Specialist recreation offered on mariculture rafts.
- A built attraction on Lamma Island.
- The cultural heritage of Cheung Chau Island.
- The transition of Tai ‘O and the offering of water-based tours.

Chapter 7 of the report summarises the issues and opportunities identified in this report. Issues and opportunities were grouped into a number of thematic areas, including:

- Policy and Regulation
- Resource Management
- Product
- Marketing
- Financial Considerations, and
- Human Capital and Capacity Building
摘要

香港特区政府中央政策组委託香港理工大学酒店及旅遊業管理学院开展一项研究，探索在香港发展漁業旅遊的潜力。該研究的目的如下：

(d) 审视香港漁業及漁民的現況。

(e) 探討將漁業發展成爲訪港旅客及本地居民商業性休閒活動的潛力及可行性。

(f) 研究利用香港周邊水域相關的自然資源及遺產，發展旅遊業的潛力。

研究小組特別指出，香港特区政府已透過現行法律，致力推動漁業的可持續發展。至於解決與漁業發展相關的其他宏觀問題，並不在本研究範圍之內。

本研究的資料參考了現有的研究報告、政府網頁和其他數據資料，以及與主要持份者進行的訪談及網上對話。文獻研究包括審閱其他人士所撰寫的相關文章及曾進行的相關研究；文案研究：檢視有關漁業、休閒漁業、水上休閒活動，以及香港旅遊業的法例。研究小組曾到多個地點進行實地調查，並與持份者、不同政府部門及其他關注團體的代表，進行過一系列的訪談。

漁業旅遊可泛指與漁業相關的旅遊活動，以及與漁民生活相關的文化遺產活動。本研究就「旅遊」採用了較廣泛的定義，包括針對香港居民的商業性休閒活動。

香港的漁業發展在1960年代達到頂峰，但隨後在1970年代開始下滑。商業漁民人口逐漸下降至2009年約7,600人，漁船數量亦相應減少至3,660艘。目前，捕漁及海魚養殖的總值約為20億港元。其他海水養殖，或水產養殖業的產值約為1.41億港元。
漁業資源正受到一系列的威脅，包括填海工程、水質惡化、中國內地發展等，導致水產重要棲息地減少。目前漁業未能達到可持續發展的目標，而且有證據顯示，即使沒有受到經濟發展相關問題的影響，漁業活動所產生的影響也足以導致可捕撈儲量枯竭。

政府已引入一系列監管及非強制性措施，以盡力保護及恢復漁業資源，而這些措施已取得一定的成效。2010年，香港特別行政區政府公佈的《漁業可持續發展委員會報告》，認同本地漁業是項歷史悠久、具有價值及具備一定可持續經濟發展潛力的重要文化資產。此外，2010年10月的行政長官施政報告亦提到，香港特別行政區政府希望實施一籃子的管理措施，以改善香港的漁業資源。

然而，政府亦明白目前商業漁民人數日漸減少，需要為漁民另謀就業機會，漁業旅遊可作其中一個選擇。較早前進行的兩項研究，指出了由漁業過渡至漁業旅遊所面對的各種困難，並總結出旅遊發展只能為少數有需要的漁民提供就業機會。本研究亦得出同樣結論。部分困難在於，目前《商船（本地船隻）條例》禁止第三類船隻接載任何乘客。因此，牌照簽發是阻礙該行業進一步發展的問題之一。鑑於目前漁業發展日漸式微，部分漁民希望將他們的漁船改裝成可以接載乘客的船隻。

旅遊業是香港的主要經濟支柱之一，2009年吸引旅客約2,950萬人。香港被公認為一個成熟的都市旅遊目的地，旅客於本地選擇的旅遊活動亦反映了該形象。女性旅客，特別是自領年輕女士，是訪港旅客中的重要組群，她們平均逗留時間較短，僅為三至四天。研究表明，多數旅客會在到港前預早規劃行程。

參加自然旅遊活動或前往偏遠地區的旅客通常很少，而參加水上旅遊活動的旅客人數則更少。一般而言，只有百分之一、甚至更少的渡假過夜旅客，會到訪偏遠的南丫島及長洲，而有意前往大澳及西貢等偏遠、古老漁村遺址的旅客人數同樣較少。研究小組與旅遊業界的討論結果顯示，此類旅遊活動的市場潛力較低。香港幾乎沒有漁業旅遊，而且亦並未被視為重點發展範疇。造成該局面的原因有許多，包括缺乏相關旅遊產品，更重要的是，這與香港被視為都市旅遊目的地的形象不符。
整體而言，水上生態文化或自然旅遊活動的潛在市場有限。該等活動可能作爲部份旅客的次選或額外活動，或作爲少數具有特殊興趣遊客的主要活動。然而，要有效針對這個目標群體相當困難。

相比之下，本地市場的發展潛力巨大。一方面，香港有超過百分之四十的人口會參與娛樂／體育活動。另方面，越來越多經濟條件較佳的本地人士，熱衷休閒娛樂活動，參與這些活動的人數正大幅增加。香港的郊野公園估計每年吸引遊客 1,300 萬人次，同時，每年約有 220,000 遊客人次前往海岸公園觀光。

水上遊憩越來越受歡迎，主要包括四類商業活動，該等活動可作爲漁業業界提供另類就業機會：

- 針對本地社區及屋邨的週末觀光旅遊
- 獨立組織的遊艇旅遊，包括乘坐香蕉船，提供午餐等
- 水肺潛水
- 垂釣。

研究小組找到多個已經或正在由漁業成功轉型至水上旅遊的案例，包括：

- 已成功由商業捕漁轉型為水上遊憩活動的西貢。
- 新界東北部具有巨大發展潛力，但須克服多項結構性障礙。
- 香港地質公園具備巨大的發展潛力，目前正在推行多個試辦項目。
- 魚排上的專業垂釣休閒活動。
- 南丫島的人造漁業景點。
- 長洲島上的文化遺址。
- 大澳成功轉型，提供水上觀光旅遊服務。
本研究報告的第 7 章，總結了有關發展漁業旅遊的問題與機遇，從而進一步提出一系列建議。該等問題及機遇可歸納為下列多個主題：

- 政策及法例
- 資源管理
- 旅遊產品
- 市場推廣
- 財政考慮；以及
- 人力資本及產能建設
1. Introduction

The Central Policy Unit (CPU) of the Hong Kong SAR Government has engaged The Hong Kong Polytechnic University’s School of Hotel & Tourism Management to conduct a study to explore the potential of developing fishing tourism in Hong Kong. The study team comprises three faculty members from the School: Professor Bob McKercher, Dr Honggen Xiao, and Dr Tony Tse. The findings of the study would be used by the Hong Kong SAR Government as a blueprint to initiate policies and to engage relevant Departments to draft policies if fishing tourism is found to have potential. This Report presents background information, summarizes research findings and key issues and opportunities identified, and concludes with recommendations.

1.1. Background

Fishing is deeply embedded in Hong Kong’s cultural heritage and forms a key element of its collective memory. Over the past few generations, though, Hong Kong has gradually drifted away from this heritage as it evolved to become a major metropolitan centre and Asia’s premier urban tourism destination. Fishing has been in decline for at least 30 years as a result of urbanization, commercialization, land reclamation, deteriorating water quality, intense competition from other areas, rising costs, reduced income and the depletion of the fishery stock. Today, its commercial fishing sector is facing an uncertain future. Some fishing activities can remain viable into the foreseeable future, while the viability of others is doubtful. As a result, a large portion of the fishing community is facing the choice of continuing in a declining sector or looking for alternative employment opportunities that can utilize their existing skills and talent. The fishing community has wondered if opportunities exist within the thriving tourism sector. The Hon Mr. Wong Yung-kan moved a motion in the Legislative Council on 4 February 2010 urging the Hong Kong SAR Government to introduce measures to facilitate fishing tourism in Hong Kong, and the motion was carried. This study was commissioned as a consequence of that action.
1.2. Objectives

This study is initiated by the Central Policy Unit of the Hong Kong SAR Government to explore the potential and feasibility of developing ‘fishing tourism’ in Hong Kong. The study has the following objectives:

(a) To review the state of play of the fishery and fishing community in Hong Kong;

(b) To examine the potential and feasibility of developing fishing as a commercial recreational activity for visitors to and local residents of Hong Kong;

(c) To study the tourism potential of developing the natural assets and heritage associated with the waters surrounding Hong Kong.

Please note that the remit of this study is sufficiently broad to enable examination of the potential of developing a range of water-based recreation and tourism opportunities apart from fishing.

1.3. Study Approach

Information provided in this study comes from both a review of existing research reports, government websites and other data sources, plus interviews and on-line conversations with key stakeholders. Documentary research consists of reviews of relevant literature and studies conducted by others, desk research, examination of legislation concerning fishing, leisure fishing and water-based recreation activities, as well as tourism in Hong Kong. Site visits were made to Lamma Island, Cheung Chau Island, Sai Kung, Tai ‘O and the far Northeast New Territories. A series of interviews was conducted with stakeholders from these areas, as well as the owner, operation manager and staff of the Lamma Fisherfolk’s Village, fishing vessel owners, fish farm owners, fishing community representatives, commercial tour operators, recreation groups and fishing supply providers, representative angling associations, scuba diving clubs, and businesses. Interviews were also conducted with representatives of the Agriculture, Fisheries and
Conservation Department (AFCD) and the Marine Department. A summary of individuals interviewed and organizations contacted is included in Appendix A.

1.4. Structure of the Report

This report is divided into nine Chapters. They are:

- Chapter 1 - Introduction
- Chapter 2 - Overview of Commercial Fishing and the Fishing Sector
- Chapter 3 - The Regulatory Framework
- Chapter 4 - Tourism in Hong Kong
- Chapter 5 - Leisure Fishing and Water-based Recreational Activities
- Chapter 6 - From Fishing to Water-based Tourism
- Chapter 7 - Issues and Opportunities

1.5. Defining Fishing Tourism

Fishing tourism can be broadly defined as tourism activities related to fishing and the cultural heritage activities associated with the fishing way of life. For the purpose of this study, a broad definition of tourism has been adopted that includes commercial recreation targeted at Hong Kong residents. This expansion has three important implications, for it extends the scope of the study to include:

- residents of Hong Kong who may engage in commercial water-based recreational activity and not just tourists (non-Hong Kong residents).

- a wide range of commercial recreational activities where the unique skills of the fishing community might be used, including fishing, scuba and skin diving, sightseeing and recreational day trips including banana boat rides, providing overnight accommodation, providing water taxi and water access services and a range of other activities.
• attractions and other tourism products that relate to the conservation and preservation of fishing as a cultural activity and way of life.

1.6. Limitations

The study team was contracted to examine the potential of tourism and water-related recreation as a means of providing an alternative livelihood for parts of the Hong Kong fishing community. The study team is aware that this issue cannot be separated from the larger issues of resource depletion, over-fishing and water quality that have affected the viability of the commercial fishing sector.

The study team reminds the reader that while the Hong Kong SAR Government has done what it can within the legal framework to make the fishery industry more sustainable, resolving larger issues relating to the state of the fisheries is beyond the scope of this study.
2. **Overview of Commercial Fishing and the Fishing Sector**

2.1. **The Fishery Industry**

Hong Kong was basically a cluster of fishing villages up to the early 1900s. As it evolved to become Asia’s centre of finance, trading, logistics, and tourism, the fishing industry went through a series of ups and downs. This sector peaked in the 1960s but since the 1970s has entered decline. The population of commercial fishers has dropped steadily from 50,000 in 1970 to about 7,600 in 2009 (Figure 2.1), with a corresponding drop in fishing fleet from 6,200 to 3,660 vessels (Figure 2.2). In a similar manner, the number of licensed mariculturists or fish farmers has also declined from 1,739 in 1990 to 1,043 in 2009 (Figure 2.3). Yet, in spite of the declining number of operators, marine capture production has increased from 78,000 tonnes in 1970 to 159,000 tonnes in 2009, due primarily to off shore or deep water fishing, from ships that can travel further from Hong Kong’s coastal waters. At present, the total value of capture fisheries and marine fish culture production is about HK$2 billion. It is equivalent to about 22% of seafood consumed in Hong Kong.

A 2003 study indicated that about 37% of the fleet consisted of ships in excess of 15m in length that largely engaged in deep water fishing. At the same time, though, about half the fleet consisted of sampans (up to 10 metres) fishing in Hong Kong’s inshore waters. It is these smaller boat owners who are most at risk.

A more recent study conducted in 2007 concluded that revenue was highly variable, ranging from a low of HK$2,000 per month for fishers that use gillnets to HK$110,000 per month for deep sea fishers. Profitability varied widely as well. Mariculture operators could earn HK$20,000-HK$30,000 per month. In addition, fishers can supplement their income by offering transport to recreationists on weekends.
Figure 2.1: Fishers population 1970-2009

(Source: Hong Kong Year Books)

Figure 2.2: Registered fishing vessels 1970-2009

(Source: Hong Kong Year Book)
Fishing activities are mainly conducted in the waters off the adjacent continental shelf in the South China Sea. The majority of the fishing vessels are manned by family members with the assistance of hired crew from the Chinese Mainland. According to a survey conducted by Agriculture, Fisheries and Conservation Department (AFCD) in 2006, the fishing fleet was scattered in 47 homeports, with concentrations in Aberdeen, Castle Peak Bay, Cheung Chau, Shau Kei Wan, and Yim Tin Tsai. The distribution of homeports is shown in Map 2.1. The common types of fishing methods used in Hong Kong waters are trawling, gillnetting, purse seining, cage trapping, and fry collection.
2.2. Mariculture

In an effort to encourage the transition from capture fishing to fish farming, mariculture, or fish farming practices were introduced into Hong Kong waters in the 1970s. According to the AFCD, in 2009 production from the aquaculture sector was 3,783 tonnes valued at HK$141 million which was 2.3% in weight and 6.5% in value of the total fisheries production. Currently, there are 29 fish culture zones occupying a total sea area of 209 ha with some 1,050 licensed operators (Map 2.2). The majority of the licensed farms are small, family-based and consisting of one to two rafts with average total area of around 280 square metres. Features of this sector include:
- garoupa, sea bream and snapper are farmed typically.
- not all areas are fully utilized. Some are abandoned, some are idle and some are active.
- the transference of licences has been legal since 1992, but occurs rarely.
- there has been a moratorium on issuing new licenses since 1979, due mostly to pollution problems caused by feeding the fish and the resultant effluent.

Discussions with mariculture operators indicated that this business is commercially viable, providing that the business model involves purchasing fish and feeding them to commercial weight, rather than growing them as fingerlings. The fry are imported from the Mainland, Taiwan, Thailand, Philippines or Indonesia, according to the AFCD and then mariculturalists mature them for 3 - 18 months before selling the product to Hong Kong or the China Mainland.

**Map 2.2: Fish culture zones**

(Source: AFCD 2010)
Operators are concerned about the long-term viability of this activity. Deteriorating water quality, high cost of fry, long incubation periods, and damage to fish culture caused by typhoons and red tide can affect both yield and income. Operators also commented that they had difficulty competing with fish farms in Mainland China that used drugs to stimulate growth that are banned in Hong Kong. In addition, succession planning is also an issue as few younger people seem willing to enter this sector.

Few mariculture operators expressed a desire to shift to water-based recreation.

Given the uncertainty of the capture fisheries’ future, one would expect that many would make the transition from capture fishing to fish farming. Yet, few capture fishers become involved in fish farming because:

- of lack of available new licences
- of lack of capital to acquire an existing license
- they may not have sufficient knowledge and skills to switch from capture fish to fish farming
- they may enjoy their traditional life on the sea and not enjoy the life of a fish farmer.

2.3. Fisheries Resources and Fishing Operations

The discussion in this section is largely based on the study “Fisheries Resources and Fishing Operations in Hong Kong Waters” commissioned by AFCD and conducted by Environmental Resources Management in 1998. The study was conducted to review and quantify the fisheries resources in Hong Kong waters and to determine the rate of exploitation for sustainable development of these resources. A detailed analysis of the state of the fisheries, assessment of fishing activities, identification of critical habitats for fisheries, evaluation of habitat disturbance from coastal development, and recommendations for protecting and sustaining stocks were included.
The study painted a rather disturbing picture of the future of the commercial fisheries unless immediate and dramatic remedial actions were initiated. The key findings relevant to the current feasibility study are summarized below.

2.3.1. Development-related impacts on fisheries

- A considerable amount of critical habitat has been lost to reclamation. For example, the North Lantau coast used to be a nursery and spawning ground for fish but was subject to large scale reclamation to provide land for the Airport Express Line and North Lantau Expressway.

- The deterioration in water quality is continuing, although recent advances in pollution control may contribute to reversals in the trends.

- Development on the China mainland affects Hong Kong waters.

- Turbidity continues to be a problem.

2.3.2. Fishing-related impacts on fisheries

- The study concluded that the current levels of fishing efforts are unsustainable, and there is evidence that fishing-related impacts are sufficiently severe to produce the observed stock depletion even in the absence of development-related impacts.

- Certain types of fishing practices, including drag trawling and use of small gill nets are indiscriminate. Others may damage the sea floor.

- The evidence are (1) total catch as a proportion of standing stock is extremely high at approximately 1:1; (2) fishing mortality values for Hong Kong stocks is extremely low; (3) different depletion patterns for different species.
The study recommended introducing regulatory and non-regulatory measures with a strong focus on conservation and enhancement of fishery and marine resources. Urgent action was advocated to rescue the Hong Kong fish stocks from their present overexploited state, with high priority items including establishing a fishing license programme, limiting new entrants to the fishery, establishing nursery and spawning ground protection areas, habitat enhancement, habitat restoration, and restocking. Medium priority options included the introduction of quotas, mesh size regulations, establishing a demersal trawl ban and establishing pelagic fisheries protection areas.

2.4. Protection of the Fisheries Resource

The fishery is protected by the Fisheries Protection Ordinance (Cap 171). AFCD works closely with the police force to enforce the regulations under the Ordinance. Offenders are liable to a fine of up to HK$200,000 and six months' imprisonment upon conviction. The Fisheries Protection Ordinance prohibits destructive fishing practices such as the use of explosive toxic substances, electricity, dredging and suction devices. At present, no regulation exists limiting entry into the commercial fishing sector, although the Hong Kong SAR Government is looking into this issue.

Marine fish culture is protected and regulated by the Marine Fish Culture Ordinance (Cap. 353) which requires all marine fish culture activity to operate under licence in designated fish culture zones. According to the AFCD regulations, recreational activities are permitted as long as they do not affect aquaculture activities and as long as public safety is ensured. Interested parties can apply to the AFCD for consent to conduct recreational fishing. However, it is understood that certain activities are prohibited, including cooking, barbecuing, littering, polluting the water, conducting other water sports, making excessive noise, use of nets, and trap bait. At present, 10 fish culture zones with rafts allowed to conduct recreational fishing.

There are also no restrictions on recreational fishing. Anglers are advised to observe the Code of Practice for Recreational Fishing and refrain from conducting activities that interfere with mariculture operations.
2.5. Fisheries’ Support Programmes

The Hong Kong SAR Government has been aware of the declining fishery for a many of years and has developed a number of programmes to both conserve and rehabilitate the fisheries’ resource and to encourage the fishing community to engage in more sustainable practices or seek alternative employment.

For example, in response to the introduction of the fishing moratorium in the South China Sea by authorities in Chinese Mainland in 1999, a series of measures was taken by the Hong Kong SAR Government to help the community cope with the moratorium. They are summarized in Appendix B.

Also, during 1999, the Hong Kong SAR Government deployed artificial reefs in Hoi Ha Wan, Yan Chau Tong, Port Shelter, and Long Harbour to help create new fish habitat and to protect the fish resources there. Funding of HK$100 million was approved for the artificial reef project and tyres, boats, quarry rock and concrete were used to create the artificial reefs. They encourage growth of a great number and variety of marine organisms, which in turn provide food, shelter and protection for fish. The results are encouraging, and over 220 species of fish are using the reefs for feeding, shelter and as spawning and nursery areas. Details of this project are described in Appendix C.

Restocking trials have been conducted in the past with 57,000 fish fry and one million prawn fry released in suitable waters with a view to assessing its effectiveness in enhancing fisheries resources. The results are encouraging, suggesting restocking of fingerlings should be conducted in waters protected from fishing activities.

2.6. Rebuilding Hong Kong’s Marine Fisheries

Ultimately, though, the questions must be asked if Hong Kong’s fisheries can be rebuilt, and if so, what is the time horizon to do so? The Hong Kong SAR Government may be able to exert some
control over its own waters, but if waters outside of Hong Kong continue to be over-exploited, the fishery will remain at risk. Moreover, even if effective actions could be implemented immediately, it will take many years for the fishery to recover, and it is unlikely that it would even sustain the number of operators it did in the past.

This issue was the central theme in a study conducted by University of British Columbia’s Fisheries Centre, Aquatic Ecosystems Research Laboratory in 2007, titled *Rebuilding Hong Kong’s Marine Fisheries: An evaluation of management options*. Key issues focused on (1) examining the economic and social consequences of implementing three possible fisheries management scenarios in Hong Kong; (2) evaluating the feasibility of creating alternative livelihoods under those scenarios; and (3) evaluating the economic consequences of successful implementation of the alternative livelihoods. The study concluded that the economic performance of Hong Kong’s fisheries is poor and that much of it is sustained largely through the provision of government aid.

Controlling fishing effort is critical to a restructuring of the industry. To this end, a suggestion was raised to implement a fishing license scheme. Without such a fishing license scheme, the number of vessels fishing in Hong Kong waters cannot be controlled, and vessels bought out may seep back in or be replaced by others.

The executive summary of the study *Rebuilding Hong Kong Marine Fisheries* is included in this report as Appendix D.

### 2.7. Sustainable Fisheries

The *Report of the Committee on Sustainable Fisheries* completed in 2010 seeks to advance conservation and sustainable practices even further. The study recognizes that the local fisheries industry is an important cultural asset with a long history, has value and has some potential for sustainable economic development. Sustainability here relates to the ability of fishers and fish farmers to achieve self-reliance and to maintain their livelihoods by ensuring the supply of fresh and quality products to Hong Kong people.
This goal can be achieved, potentially with a two-pronged strategy of: 1) assisting fishers to develop or switch to modernized and sustainable modes of operations, and; 2) protecting, conserving and rehabilitating marine ecosystems and fisheries’ resources.

Assisting fishers to develop or switch to modernized and sustainable modes of operations can be achieved through:

- Enhancing fishers’ understanding of sustainable fisheries;
- Promoting fisher cooperative enterprises;
- Providing stable financial support to sustainable fisheries development programme;
- Reviewing fisheries loans requirements and approval procedures;
- Implementing specific support measures for sustainable fisheries operations including recreational fisheries; and
- Strengthening communications with the Mainland counterparts to help fishers seek business opportunities.

Protection, conservation and rehabilitation of marine ecosystem and fisheries’ resources can be achieved by:

- Maintaining an appropriate number of fishing vessels;
- Prohibiting fishing by non-local vessels in Hong Kong waters;
- Banning trawling in Hong Kong waters;
- Assisting trawler fishers to switch to other operations;
- Strengthening fisheries management and law enforcement;
- Strengthening regulations of coastal and marine development projects;
- Designating fisheries protection areas; and
- Prohibiting commercial fishing in marine parks.

*The Chief Executive’s Policy Address* in October 2010 mentioned that the Hong Kong SAR Government planned to implement a basket of management measures such as banning trawling
in Hong Kong waters in order to restore our seabed and marine resources as early as possible. The Hong Kong SAR Government also announced a voluntary trawler buyout scheme, and granting of ex-gratia allowances to eligible fishers. It would also provide training and technical support for affected fishers to help them switch to other sustainable fishing operations, including aquaculture and leisure fishing. Some fishing vessels bought under the voluntary scheme will be processed for use as artificial reefs to enrich fishery resources and improve the marine ecology.

2.8. The Fishing Community, its Future and Alternative Employment Options

It is estimated that some 7,600 people are still involved in the capture fishery. This figure has declined steadily since the 1970s and it can be attributed to a number of factors, including declining on shore fishery, changes in lifestyle, urbanization, availability of educational opportunity for family members and alternative, less demanding employment opportunities elsewhere.

In addition to a declining number of fishers, those remaining in the sector are aging. Most are now in their mid fifties or above. They have little formal education, with many leaving school before finishing high school. Most speak Cantonese or one of the local dialects and have limited English or Putonghua language skills.

Historically, family members acted as crew, but now younger people are unwilling to enter the sector. To address this crew shortage and to reduce costs, the Mainland Fishers Deckhands Scheme was introduced in 1995 in collaboration with Immigration Department to allow up to 7,200 mainland fishers deckhands, to enter Hong Kong specifically to unload fish catch at wholesale fish markets or to work as crew in Hong Kong based ships.

Succession planning, therefore, remains a problem. Family members instead, choose to enter into other kinds of industry because fishing is a harsh and unpredictable livelihood. Moreover, as they have had the chance to receive a better education than their parent’s generation, many feel they have more options. In a similar manner, mariculturalists also voiced that making a living is
difficult and that their younger generations are unlikely to continue with the operation.

Two independent studies were identified that examined the viability of alternative livelihood options for Hong Kong fisher. The first, titled *A survey of alternative livelihood options for Hong Kong’s fishers* by Teh et al (2008) includes a summary of research produced in the aforementioned study on rebuilding Hong Kong’s marine fisheries, while the second, titled, *The Feasibility of Creating Alternative Livelihoods for the Fishing Community in Hong Kong* by Brooks et al (2008) represented the findings of a post graduate study. Both investigated the willingness and ability of fisher to switch jobs, with both studies focusing strongly on tourism potential. The key findings are summarised below.

Ideally, tourism could provide an opportunity for fisher to transfer existing skills into the water-based tourism and recreation sector. Support was voiced in principle by members of the fishing community, in part because they were concerned about their abilities to secure other types of employment given their low education levels. They also felt that marine associated activities provided higher income options than low-wage, non-marine related work.

Both studies identified a number of barriers to their transition from fishing to tourism and concluded that tourism might provide employment for only a small percent of the currently at risk fishing community. Fishers themselves recognised that their own skill sets may be limited, apart from fishing and boat-related activities. Training programmes could be offered.

Costs and available income to make a career transition are a further issue. A typical boat used for on shore fishing costs HK$30,000 and HK$50,000, new, including the cost of the outboard motor. Boat buyback schemes for these operators would not generate much revenue. Wooden mid-size ships are thought to cost about HK$800,000, while trawlers can cost up to HK$5 million. Boat buy back schemes may help these operators, yet, they remain largely financially viable. Renovating a fishing boat to meet the standards required of a tourism boat is expensive. Leisure boat licenses require a written exam. Passing such an exam is a difficult task for the portion of the population which is illiterate. Additionally, safety and insurance requirements necessitate significant capital investment to make current fishing boats suitable for the tourist trade.
The studies noted further that the nature of tourism as a service industry created special challenges. In particular, most tourists speak either English or Putonghua and that any fishers making the transition to tourism would need to speak both of these languages. Few fishers speak English and that most are reluctant to learn.

Seasonality and economic uncertainties associated with tourism might dissuade fishers from shifting. Their study illustrated that demand for recreational fishing can fluctuate widely, which in turn means that demand for both operators can fluctuate widely. They also identified legal and administrative costs associated with transforming ships from fishing to other purposes increases the financial risk of entering such a potentially volatile market.

The diving and recreational boating sectors are undergoing substantial growth. One option available is for fishers to leave the industry and enter the employ of these operators. In principle, dive operators were receptive to hiring fishers. In practice, though, industry representatives expressed some reluctance to do so out of concern for their lack of sales skills, age, attitude, suitability for working in the service sector and dealing with the public as well as a potential lack of interest in the job. Potential jobs ranged from fishing guides to cleaning crew sailors or dive masters.

Perhaps the attitude of the fishers represents the greatest challenge facing the sector. Most are conservative by nature and, given their age and limited financial resources are risk averse. They also tend to regard the sector as being in a sunset phase and see limited hope for the future. Many of the older fishers may not be able to make the transition to new non-fishing tourism based careers. However, many younger people may be able to make that transition if provided with the appropriate training, encouragement and assistance.
3. The Regulatory Framework

The regulation and control of local vessels in Hong Kong waters are governed by the Merchant Shipping (Local Vessels) Ordinance, Chapter 548. This Chapter highlights the key provisions of the Ordinance which are relevant to fishing vessels. It also contains a discussion on the regulatory issues related to the development of fishing tourism.

3.1. Highlights of the Ordinance

3.1.1. Certification

Every local vessel is to be certificated and licensed. The owner of a local vessel shall be (a) an individual who holds a valid Hong Kong identity card and who is ordinarily resident in Hong Kong; or (b) a company or non-Hong Kong company within the meaning of the Companies Ordinance (Chapter 32). A local vessel shall be so certificated for Class I, II, III or IV.

Class I refers to ferry vessel, floating restaurant, launch, multi-purposes vessel, primitive vessel, and stationary vessel.

Class II refers to crane barge, dangerous goods carrier, dredger, dry cargo vessel, dumb lighter, edible oil carrier, flat-top work barge, floating dock, floating workshop, hopper barge, landing platform, landing pontoon, noxious liquid substance carrier, oil carrier, pilot boat, special purpose vessel, stationary vessel, transportation boat, transportation sampan, tug, water boat, and work boat. No full license or temporary license for a Class II vessel shall permit the vessel to carry more than 12 passengers.

Class III refers to fish carrier, fishing sampan, fishing vessel, and outboard open sampan. A Class III vessel shall be used exclusively for fishing and related purposes. Class III vessels are not permitted to carry any passenger. No full license or temporary license for a Class III vessel shall permit the vessel to carry any passenger.
Class IV refers to auxiliary powered yacht, cruiser, and open cruiser. A Class IV vessel shall not be used otherwise than by the owner exclusively for pleasure purposes; or if it has been let to any person, by that person exclusively for pleasure purposes. A Class IV vessel shall not be let for hire or reward unless it is let under the terms of a written charter agreement or written hire-purchase agreement and the agreement is signed by the owner and the person to whom the vessel is let.

A Class IV vessel shall not be let for hire or reward for an intended service that involves the carriage of passengers unless there is in force in respect of the vessel: (i) such certificate of inspection or certificate of survey certifying that the vessel is fit for the intended service as is required under the Survey Regulation for a Class IV vessel of the type for which the vessel is certificated; and (ii) such policy of insurance in respect of third party risks as is required under Part VA of the Ordinance for a Class IV vessel of the type for which the vessel is certificated, having regard to the intended service.

Where a Class IV vessel is let for hire or reward:

- the owner, his agent and the coxswain shall ensure that there is kept on board the vessel (i) the relevant written charter agreement or written hire-purchase agreement; and (ii) if any passenger is carried in the vessel, the certificate of inspection or certificate of survey and the policy of insurance, or certified copies of them;
- the person to whom the vessel is let shall ensure that throughout the period when the person is in possession of the vessel (i) the vessel is not used otherwise than by him exclusively for pleasure purposes; and (ii) the documents referred to in the above paragraph are kept on board the vessel; and
- the coxswain shall, on request by an authorized officer, produce for inspection the documents referred in the above.

Class IV vessel is to be regarded as being used by a person exclusively for pleasure purposes if:

- in the case of the person being an individual, the vessel is used to carry the individual,
his family members, relatives, friends and employees, and family members, relatives
and friends of his employees, for their pleasure purposes; or

- in the case of the person being a club, company, partnership or association of persons,
the vessel is used to carry its members and employees, and family members, relatives
and friends of those members and employees, for their pleasure purposes.

3.1.2. Certificate of Ownership

A certificate of ownership shall be assigned with a number by the Director of Marine and shall
specify:

(a) the class and the type that the local vessel is certificated for;
(b) the name of the vessel;
(c) the name and shore address in Hong Kong of the person whom the Director of
Marine is satisfied to be eligible to be named as the owner and the number
appearing on the document of identification of the owner;
(d) the business name of the owner (if any);
(e) an endorsement of the particulars of an agent (if any);
(f) the year and place of construction of the vessel;
(g) the year of purchase and the purchase price;
(h) the length and breadth (in metres) of the vessel;
(i) (if the measurements are made) the depth (in metres) and the tonnage of the vessel;
(j) a description of the material of which the hull of the vessel is constructed;
(k) an endorsement as to ancillary vessel (if any); and
(l) an endorsement as to mortgage or hire-purchase agreement (if any).

A full license for a local vessel is valid for such period as may be determined by the Director of
Marine and specified in the license, which shall not exceed 12 months, beginning from the date
of issue of the license.

No local vessel shall occupy an area of the waters of Hong Kong for its use exclusively.
No local vessel shall remain stationary in an area of the waters of Hong Kong unless its full license, temporary license or permission for a laid-up vessel permits it to do so.

3.1.3. Certificate of Competency

A Class I, II or III vessel that is fitted with any propulsion engines shall not be underway unless there is on board: (i) a person in charge of the vessel who is the holder of a local certificate of competency as a coxswain appropriate for the vessel, or any equivalent certificate specified in the Local Certificate of Competency Rules; (ii) in addition to the person referred to in (i), a person in charge of the engines who is the holder of a local certificate of competency as an engine operator appropriate for the total propulsion power of the engines of the vessel, or any equivalent certificate specified in the Local Certificate of Competency Rules; and (iii) such additional number of crew with such qualification, training and experience as may be specified in the full license or temporary license for the vessel.

A Class IV vessel or an ancillary vessel of a Class IV vessel that is more than 3 metres in length overall or is fitted with engines of more than 3 kilowatts total propulsion power shall not be underway unless there is on board a person in charge of the vessel who is the holder of a local certificate of competency as a pleasure vessel operator, or any equivalent certificate as specified in the Local Certificate of Competency Rules.

A person under the age of 16 shall not steer, navigate or operate a local vessel that is fitted with a propulsion engine.

Local vessels are not required to have a competent engine operator:

- A Class I vessel of less than 10 metres in length overall, fitted with one engine not exceeding 38 kW propulsion power, and restricted to ply within a specified typhoon shelter and port in its full license or temporary license.
• A Class II vessel that is fitted with one engine not exceeding 38 kW propulsion power.

• A Class III vessel, other than an outboard open sampan, that is fitted with one engine not exceeding 83 kW propulsion power.

• A Class III vessel that is an outboard open sampan of less than 10 metres in length overall and fitted with one petrol outboard engine not exceeding 12 kW propulsion power.

3.1.4. Passengers

No unlicensed local vessel shall carry any passengers.

No licensed vessel shall carry any passengers unless the conditions of its operating license permit the carriage of passengers.

No licensed vessel shall carry more passengers and crew than may lawfully be carried under the conditions of its operating license.

3.2. Regulatory Issues related to the Development of Fishing Tourism

Licensing is one issue that is felt to be hindering the further development of this sector. In particular, restrictions placed on fishing vessels prohibiting them from carrying passengers makes it difficult for operators to legally engage in this activity. Representatives of the fishing and recreational fishing communities feel that fishing tourists from outside the region may feel unsafe if fishing trip arrangements have to be made on such boats, primarily because of insurance issues.

According to the regulations, fishing vessels fall under Class III and leisure vessels fall under Class IV. The classification and licensing system however does not accommodate the kind of
vessel which can be used for both fishing and leisure purpose. It is not clear what kind of license is required for recreational/leisure fishing. According to the regulations, “passenger” means any person carried in a vessel other than (a) a member of crew, and (b) a child under one year of age, while “crew” means the coxswain and any other person employed or engaged in any capacity on board a local vessel on the business of the vessel. It is not clear how a Class III vessel can legally carry clients going on a charter deep sea fishing trip.

This issue represents a significant impediment for fishing vessels that wish to transfer to deep sea fishing or other activities where they will carry passengers. Since, fishers would be breaking the law if they carry tourists as passengers, therefore it is illegal for them to diversify into tourism using their fishing vessels. Responding to fishers’ request a few years ago, the Marine Department introduced a three-month trial period of allowing fishing vessels to carry passengers, however the trial was not conclusive. Fishers found the trial period too short for them to invest in modifying fishing vessels to accommodate the safety requirements for carrying passengers.

Given the decline in the fishing sector, some fishers would like to modify their fishing vessels to allow passengers. The vessel can be licensed as a Class I vessel for carrying passengers if it complies with the safety standard. It is however not clear what the safety standard is.

There is no “water taxi” in Hong Kong at the moment, and fishers would consider converting their fishing vessels into “water taxi” and shifting into alternative livelihood. Such “water taxi” mostly likely should be licensed as Class I vessel. For such “water taxi” to take passengers in Hong Kong waters, it might be necessary to zone the waters differently to permit different uses in different areas. For example, just as with taxis where green and blue taxis cover different areas, something similar should be done to allow “water taxi” to take passengers to different zones. This would require a new set of marine regulations to be developed.

No vessel is allowed to enter Hong Kong waters without the permission from the Director of Marine. Yet, fishers from mainland China sometimes move into Hong Kong waters, which also contribute to the depletion of fishery resources in Hong Kong. Such movement although illegal is very difficult to monitor and represents a policing matter.
4. Tourism in Hong Kong

4.1. Inbound Tourism to Hong Kong

This chapter presents an overview of inbound tourism to Hong Kong and identifies issues of relevance to water-based tourism. It begins with an overview of visitor numbers, trip purpose and activities pursued, before focusing on nature-based tourism, especially in the Northeast New Territories.

4.2. Importance of Tourism

Tourism represents one of Hong Kong's major economic pillars. Hong Kong is the world’s 14th most popular destination and the most popular city destination overall. It is a sophisticated, multi-product urban destination offering a wide variety of shopping, dining, sightseeing and generalist recreation activities. Some 29.5 million people visited in 2009, with total expenditure associated with inbound tourism estimated to be about HK$160 billion. As of June, 2010, Hong Kong had 173 hotels offering 60,104 guest rooms and an additional 611 guest houses providing 5,830 rooms, giving Hong Kong a total room stock of 65,943 rooms. The Census and Statistics Department estimates that about 200,000 people were directly employed in the tourism sector in 2008, representing 5.6% of all employment.

4.3. Visitor Profile

Some 17 million of the nearly 30 million arrivals over-nighted in the city. The following Section profiles visitors to Hong Kong, with special emphasis on the Vacation Overnight market segment. Data were derived from the Hong Kong Tourism Board Visitor Profile Report – 2009. This publication presents a series of summary tables of information gathered in the departing visitor survey for 23 of Hong Kong's most important inbound markets. This analysis focuses on the 15 largest markets that collectively generate almost 98% of arrivals.
Table 4.1 shows the volume of all arrivals and overnight arrivals from these major markets, summarizes trip purpose and identifies the size of the vacation overnight market used in subsequent analysis. Please note that for the sake of this report, Taiwan, and to a lesser degree Macau, are treated as separate ‘economies’. China is by far the dominant source market for Hong Kong, generating 60% of total arrivals and almost 60% of overnight stays. Taiwan is the second-largest source market by volume, followed by Europe (as an aggregated market), Japan and the United States. Each of these markets generated more than one million arrivals. Other important markets generated between 300,000 and 700,000 arrivals.

Trip purpose is closely related to the distance travelled and the extent of common ethnic ties with source markets. Vacation travel is the dominant trip purpose for visitors from the China mainland, with over one quarter visiting friends or relatives. Relatively few Chinese visitors come for business. Up to three quarters of overnight visitors from other Asian markets identified their trip purpose as vacation, with between 10% and 25% are travelling for business. By contrast, the share of vacation visitors from long haul markets is much smaller, and typically less than 50% of overnight visitors. Business travel constitutes up to one third of total visitors.

4.4. Vacation Overnight Visitors

In total, about 9.5 million vacation overnight visitors came to Hong Kong. This group represents the most important potential market for recreational activities. Table 4.2 summarizes the demographic profile of the largest markets. Women represent almost six out of every ten visitors and are by far the dominant group within greater China and Asia. A more equal gender balance is noted among long haul visitors. Men are the dominant gender group from India.

A strong relationship exists between age, travel party composition, the underlying reason to visit and subsequent behaviour. Within Hong Kong, these differences translate in the following ways:

- Tourists from short-haul markets tend to travel primarily for escape, rest and relaxation purposes or to spend time with family and friends. Women represent the largest share of visitors and many are travelling in groups of so called Young Office Ladies. They are
more likely to go shopping and visit theme parks. The higher propensity to visit the ladies market and the preference to purchase clothing, handbags and cosmetics is a reflection of the gender differences between short and long haul tourists.

- Those from long haul markets tend to travel more for self development, personal enrichment and knowledge reasons. They are more likely to visit museums, outdoor markets and participate in activities like a sampan ride that provide them with an opportunity to engage in a culturally different experience. They also visit attractions most commonly associated with first-time visitors, such as the Peak Lookout or the ferry between Hong Kong Island and Kowloon.

- Short haul tourists are more likely to be under the age of 45, while long haul visitors are more likely to be over 46.
Table 4.1: Profile of Visitors to Hong Kong

<table>
<thead>
<tr>
<th></th>
<th>All markets</th>
<th>China</th>
<th>Taiwan</th>
<th>USA</th>
<th>Canada</th>
<th>Europe / Africa and the Middle East (incl. UK)</th>
<th>UK</th>
<th>Australia</th>
<th>Japan</th>
<th>S. Korea</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Singapore</th>
<th>Thailand</th>
<th>India</th>
<th>Macau</th>
</tr>
</thead>
<tbody>
<tr>
<td>All arrivals (000)</td>
<td>29,590.6</td>
<td>17,956.7</td>
<td>2,009.6</td>
<td>1,070.1</td>
<td>361.9</td>
<td>1,968.8</td>
<td>514.0</td>
<td>600.1</td>
<td>1,204.5</td>
<td>618.7</td>
<td>353.6</td>
<td>563.8</td>
<td>441.7</td>
<td>623.7</td>
<td>387.7</td>
<td>366.6</td>
<td>671.4</td>
</tr>
<tr>
<td>Share of all arrivals</td>
<td>100.0</td>
<td>60.7</td>
<td>6.8</td>
<td>3.6</td>
<td>1.2</td>
<td>6.7</td>
<td>1.7</td>
<td>2.0</td>
<td>4.1</td>
<td>2.1</td>
<td>1.2</td>
<td>1.9</td>
<td>1.5</td>
<td>2.1</td>
<td>1.3</td>
<td>1.2</td>
<td>2.3</td>
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<tr>
<td>Overnight arrivals (000)</td>
<td>16,926.1</td>
<td>9,663.6</td>
<td>613.9</td>
<td>755.8</td>
<td>260.7</td>
<td>1,417.8</td>
<td>415.4</td>
<td>462.6</td>
<td>779.6</td>
<td>401.6</td>
<td>263.9</td>
<td>455.8</td>
<td>326.3</td>
<td>456.7</td>
<td>303.2</td>
<td>231.4</td>
<td>249.8</td>
</tr>
<tr>
<td>Share of overnight arrivals</td>
<td>100.0</td>
<td>57.1</td>
<td>3.6</td>
<td>4.5</td>
<td>1.5</td>
<td>8.4</td>
<td>2.5</td>
<td>2.7</td>
<td>4.6</td>
<td>2.4</td>
<td>1.6</td>
<td>2.7</td>
<td>1.9</td>
<td>2.7</td>
<td>1.8</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Overnight visitors as a % of all arrivals</td>
<td>57.2</td>
<td>53.8</td>
<td>30.5</td>
<td>70.6</td>
<td>72.0</td>
<td>72.0</td>
<td>80.8</td>
<td>77.1</td>
<td>64.7</td>
<td>64.9</td>
<td>74.6</td>
<td>80.8</td>
<td>73.9</td>
<td>73.2</td>
<td>78.2</td>
<td>63.1</td>
<td>37.2</td>
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</table>

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<tr>
<th>Overnight Visitor Trip Purpose (%)</th>
</tr>
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<tbody>
<tr>
<td>Vacation</td>
</tr>
<tr>
<td>Visiting Friends and Relatives</td>
</tr>
<tr>
<td>Business / Meeting</td>
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<tr>
<td>Other</td>
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<th>Overnight Vacation Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume (000)</td>
</tr>
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</table>

(Source: HKTB 2010)
### Table 4.2: Profile of Vacation Overnight Visitors

<table>
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<th>Gender</th>
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<th>China</th>
<th>Taiwan</th>
<th>USA</th>
<th>Canada</th>
<th>Middle East (incl. UK)</th>
<th>UK</th>
<th>Australia</th>
<th>Japan</th>
<th>S Korea</th>
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<th>Philippines</th>
<th>Singapore</th>
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<th>India</th>
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<tbody>
<tr>
<td>% female</td>
<td>59</td>
<td>61</td>
<td>64</td>
<td>48</td>
<td>50</td>
<td>44</td>
<td>46</td>
<td>51</td>
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<td>64</td>
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<td>59</td>
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<tr>
<td>Age (%)</td>
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<tr>
<td>&lt; 25</td>
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<td>17</td>
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<tr>
<td>26 to 45</td>
<td>56</td>
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<td>65</td>
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<tr>
<td>&gt; 65</td>
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<td>2</td>
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<tr>
<td>Average age (yrs)</td>
<td>37.6</td>
<td>36.2</td>
<td>35.8</td>
<td>43.8</td>
<td>42.0</td>
<td>40.7</td>
<td>43.3</td>
<td>44.2</td>
<td>41.0</td>
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<td>37.5</td>
<td>37.9</td>
<td>39.8</td>
<td>37.1</td>
<td>27.9</td>
</tr>
</tbody>
</table>

(Source: HKTB 2010)
Table 4.3 compares and contrasts their travel patterns. The average length of stay is short at less than three nights. The majority of long haul vacation overnight visitors have never been to Hong Kong before, while most visitors from Asia are making repeat visit.

Hong Kong plays different roles as a destination depending on the origin of the market. The China and Taiwan segments see Hong Kong as a main destination and usually as the only destination visited during short break vacations. These tourists may include a side trip to Macau but are unlikely to travel elsewhere. The short haul non-Chinese Asian market also regards Hong Kong as a short break destination and either sees it as the only destination of the trip, or as a destination that can be combined with Macau or nearby Guangdong Province. By contrast, the long haul market regards Hong Kong as a stopover destination that provides both a desirable and a necessary break on long haul trips between Europe and Australia or as the access or egress point China.

Time availability plays a critical role in determining movements through Hong Kong. A typical three night/for a day trip means that tourists effectively only have two full days in Hong Kong. Usually, tourists arrive partway through the first day and leave partway through the final day. Those staying only two nights have effectively one free day. The reality of effect of time availability represents a significant constraint on the movement patterns of tourists, in general, and in particular in their ability to travel to outlying areas of Hong Kong.

The School of Hotel and Tourism Management at The Hong Kong Polytechnic University has conducted a number of studies examining tourist movements in Hong Kong. This research found that half or more of the tourist’s total time was spent within a within 500 metre radius of their hotel. Those on the shortest stays were least likely to travel outside of this perimeter, and when they did it was mostly to one or two well known attraction areas, such as the Peak or Stanley market or theme parks.

Notably, because tourists stay in Hong Kong for only a short period of time, most set priorities about which attractions they will visit or which districts they will go to. This prioritization
process begins at home, and is often set rigidly by the time they arrive. Most tourists feel an obligation to see major attractions and, with limited time, will choose to go to places that offer a variety of experiences. They are unlikely to change their itinerary, and will only do so if changes involve relatively little time, effort or cost.

Risk is also a critical issue. Most tourists are risk averse, and therefore choosing activities that can maximize the pleasure of a visit, while minimizing the risk of a poor experience. As a result, tourists tend to want to visit well known places where the expectation of a satisfying experience is high. They are, in turn, unwilling to visit lesser known places and, especially, are unwilling to substitute visits to lesser known places for a known, satisfying experience.
Table 4.3: Travel Patterns of Vacation Overnight Visitors

<table>
<thead>
<tr>
<th></th>
<th>all markets</th>
<th>China</th>
<th>Taiwan</th>
<th>USA</th>
<th>Canada</th>
<th>Middle East (incl. UK)</th>
<th>UK</th>
<th>Australia</th>
<th>Japan</th>
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<th>Malaysia</th>
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<tbody>
<tr>
<td><strong>Length of stay</strong></td>
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<tr>
<td>Ave (nts)</td>
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<td>2.3</td>
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<td>3.0</td>
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<td>3.0</td>
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<td>% 4 or more nights</td>
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<td>36</td>
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<td>39</td>
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<td>% Hong Kong as only</td>
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<td></td>
</tr>
</tbody>
</table>

(Source: HKTB 2010)
Table 4.4 illustrates the impact of time and risk constraints on places visited:

- Built icon attractions including theme parks and Ngong Ping 360 are popular, although the extent of the popularity varies depending on the source market. Theme parks are most popular among the short haul, pleasure and escapist market, but are not particularly popular among long haul and Japanese tourists. Instead, the long haul visitor is much more interested in the culturally-related Ngong Ping 360 attraction that provides both a spectacular view as well as access to the Giant Buddha area.

- Conveniently located shopping and sightseeing areas, especially those in Kowloon are popular with most tourists, while Westerners tend to prefer visiting Stanley.

Generally, few tourists participate in nature-based tourism activities or visit remote areas of Hong Kong where such activities occur. Typically, 1% or fewer of vacation overnight tourists visit the outer islands of Lamma and Cheung Chau, with a similarly small number of individuals interested in visiting the remote remnant fishing village of Tai O or the purpose built Hong Kong Wetland Park attraction. In spite of significant promotion, few visit Sai Kung, while hiking or visiting country parks is limited largely to the Peak areas.

The challenge of drawing tourists to nature-based or cultural tourism activities in remote areas is reflected in discussions with stakeholders and industry representatives interviewed for this study:

- Water tours to visit the pink dolphins are popular, but most guests are local residents. Discussions with the largest operator indicated that between 5,000 and 7,000 people join their cruises each year, and that the number has been stable for some years. About 70% are English speaking with most of the rest from Japan. Most of the English speaking guests are local Hong Kong residents.

- The World Wide Fund for Nature (WWF) reports that 24,000 people visited Mai Po Reserve in the 2009/10 financial year, of which 2%, or about 500 were from overseas.
• The WWF also reports that the Hoi Ha Marine Life Centre is situated within Sai Kung West Country Park / Hoi Ha Wan Marine Park, and offers a range of programs mostly for schoolchildren and groups. It is not open to the general public or to tourists. In the last financial year (2009/10), 4,200 people visited.

• Walk Hong Kong is the largest organization of its type in Hong Kong. The current owners stated they took around 1,000 paying clients on various hikes through Hong Kong in 2009 and as of September, 2010, had taken about 700 clients. About 90% of the business is Internet-based, with United States, Canada, Australia, the United Kingdom and Germany representing the largest source of visitors. The most popular hike is a short walk along Dragon’s Back on Hong Kong Island.

• Kayak and Hike is Hong Kong's oldest nature-based tourism business. The company specializes in kayak trips in and around the Geopark area of Sai Kung. It is estimated that the business caters to less than 1,000 people a year (based on a maximum of ten people per trip, and two trips per weekend). According to the owner, the vast majority of his clients are Hong Kong residents rather than tourists. He classified them as overseas educated Hong Kong Chinese, expatriates and other long-term residents. Few (probably less than 10%) are tourists.

The Hong Kong Tourism Board identifies additional challenges facing promotion of this activity. At present

• no product exists to be sold to the travel trade
• the local market is not sufficiently large to generate demand for the travel trade to begin offering products
• access and infrastructure issues hinder the development of this sector.
### Table 4.4: Activities Pursued and Places Visited by Vacation Overnight Visitors

<table>
<thead>
<tr>
<th>Places visited / activities (%)</th>
<th>all markets</th>
<th>China</th>
<th>Taiwan</th>
<th>USA</th>
<th>Canada</th>
<th>the Middle East (incl. UK)</th>
<th>UK</th>
<th>Australia</th>
<th>Japan</th>
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<th>Singapore</th>
<th>Thailand</th>
<th>India</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

(Source: HKTB 2010)
4.5. Northeast New Territories

The Tourism Commission contracted The Hong Kong Polytechnic University to study the tourism potential of the Northeast New Territories in 2002. The findings from that study are still relevant today. The area currently receives little tourism visitation. Precise visitation figures are unavailable, but the study suggested fewer than 0.3% of (mostly Western) visitors venture to the far north. Few if any visitors from the China mainland are interested in this area. In particular, the study identified some strengths and opportunities present in the area, but they were largely outweighed by significant weaknesses in both infrastructure, product and other areas. The strengths and weaknesses are summarized briefly below.

Strengths

- a well-established country park and marine park network protecting fragile ecosystems;
- strong bio-diversity including coral reefs and internationally significant wetlands;
- remoteness and relative isolation providing wilderness or near wilderness experiences;
- strong recreational infrastructure, including hiking trails, boat moorings and docking facilities;
- strong community support for sustainable tourism;
- many intact, unoccupied or largely unoccupied villages retaining their traditional architectural and cultural features;
- unique cultural heritage assets.

Weaknesses

- Access
  - physically remote, long distance from tourism nodes;
  - difficult to reach outer islands;
  - Frontier Closed Area restrictions prohibit access through Shau Tau Kok.
• Amenity
  o poor amenity and visual features;
  o most villages are in a poor state of repair;
  o lack of basic infrastructure, including water, sewage, and in some cases even electricity.

• Other
  o air and water pollution;
  o largely depopulated, with a small, rapidly aging remnant population;
  o lack of suitable accommodation.

This study concluded that there was some niche tourism potential in the far northeast and that to deliver on this potential overnight roofed accommodation would need to be provided either by converting abandoned houses into bed and breakfasts, converting abandoned schools into youth hostels or possibly converting entire villages into health spas and resorts. Much more potential exists to satisfy the needs of the local community.

4.6. Fishing Tourism in Hong Kong

It is estimated that about there are approximately 68 million blue water anglers worldwide, of which an estimated 5%, or 3.4 million travel abroad on holiday with the main purpose being to fish. About 34 million are Americans, although the share is declining. In addition, an estimated additional three million tourists participate in some kind of fishing during their trip. Most blue water fishing tourism seems to occur in the Caribbean and tropical Atlantic ocean, as well as in tropical areas of the Pacific Ocean. The specialist tour operator market is believed to be healthy.

At present, though, blue water fishing tourism is virtually nonexistent in Hong Kong. The study team identified fewer than five commercial operators, of which only two were active. The further development of a fishing tourism industry faces a number of structural barriers as identified by stakeholders.
Because nature-based tourism in general, and fishing in particular are incompatible with Hong Kong's dominant destination image, consumers are unlikely to think of Hong Kong as a place for fishing and, alternately, would place other destinations as higher top of mind priorities.

A perception exists that the diversity and quality of the fishery is not at the standards expected by tourists.

Existing information is inadequate and difficult to find. As a result, potential fishing tourists find it difficult to plan their trips. An Internet search revealed that some blogs talked about fishing tourism, but that these blogs were outdated. Moreover, the common question asked in them was whether operators were still in business.

Current legislation prohibits fishing boats from taking passengers. Because it is illegal, fishers are reluctant to release their contact information for potential visitors. At the moment, fishing associations and fishing equipment shops remain the only intermediaries or brokers for making fishing tour arrangements for the limited number of inbound fishing tourists. Many of the people who did come to Hong Kong for fishing trips were brought here as a result of the word-of-mouth.

The quality of the fishing fleet is also incompatible with high end deep-sea fishing. Most of the ships are working trawlers.

Access to attractive areas also remains difficult. In particular, access to the Northeast New Territories via Shau Tau Kok is still limited due to restrictions on entering the Frontier Closed Area.
4.7. Challenges in Promoting Water-based Tourism in Hong Kong

Nature-based tourism in Hong Kong, including water-based tourism will always remain a niche activity that will struggle to generate visibility in a crowded market place, and sufficient visitor numbers to provide viable business opportunities for all but a small number of specialist operators.

One reason is that the Hong Kong’s destination image is that of a modern, urban metropolis. Most visitors associate sophisticated, urban products with this image, including fine dining, shopping, interesting sightseeing, theme parks, etc. Moreover, an urban destination also usually is associated with a less than pristine environment, traffic congestion, noise and pollution; attributes that nature-based tourists seek to escape when they travel. Such an image is incompatible with the desired image and associations of a nature-based area as being pristine, clean and uncrowded.

Overall, therefore, the potential tourism market to engage in water-based eco-cultural- or nature-based tourism activities is limited. It may be a secondary or supplementary activity for some tourists and may be a primary activity for a small number of special-interest tourists. However, it will be difficult to target this market effectively.

The Hong Kong Tourism Board has just begun to promote limited nature-based tourism activities focussing around the Oxfam Trailwalker project and the nascent Hong Kong National Geopark. The Trailwalker programme is event focussed around this annual event held every November. Some success has been noted in drawing visitors from Japan and Taiwan.

The goal for the Hong Kong National Geopark is now awareness building in markets. The sense is that awareness is low to non-existent, so the task will be a longer term goal of the HKTB.

At present, HKTB does not promote water-based tourism, other than sightseeing tours on Hong Kong Harbour and some limited tours (i.e. pink dolphin watching). It does not promote active
water-based tourism (scuba diving, banana boating, fishing) as it is not seen as matching Hong Kong’s image nor is it related to its core product set. Furthermore, it cannot envision investing resources to develop this sector until and unless industry starts to develop products.

As such, the tourism market is small, specialised and limited. Instead, the local leisure community provides a much more viable market for these activities, as discussed in the next Chapter.
5. Leisure Fishing and Water-based Recreational Activities

5.1. Leisure in Hong Kong

This Chapter presents an overview of leisure activities of Hong Kong residents, focusing on water-based activities. Much of the material presented here comes from interviews with government officials, stakeholders and industry.

5.2. Overall Leisure Participation

It is often assumed that Hong Kong residents are not particularly active in outdoor pursuits. However, such an assumption is not entirely correct. A significant minority of people participate quite frequently in a range of outdoor recreation opportunities, including hiking, water-based activities and other activities.

In 2003, the Census and Statistics Department conducted a thematic household survey examining leisure time use of Hong Kong residents. The study concluded:

- Some 50.5% of the population participated in leisure activities in the previous three months. This figure equates to some 2,829,000 persons aged 15 and over. Over half (52.7%) participate at least once a week; 30.7%, less than once a week but at least once a month; 11.7%, less than once a month but at least once every three months; and 4.9%, less than once every three months. Therefore, some 1.4 million participate in leisure activities on a weekly basis.

- The average duration of time spent on different types of social activities was 2.2 hours for recreational / sports activities and 2.8 hours for leisure activities.
• On weekends, persons aged 15 and over spent on average 5.6 hours on “free-time / leisure activities”.

• Some 43.3% or 2,423,000 persons aged 15 and over participated in recreational / sports activities. Over half (53.8%) participated at least once a week; 33.7%, less than once a week but at least once a month; 10.3%, less than once a month but at least once every three months; and 2.3%, less than once every three months. Again, some 1.3 million people participate in recreation activities on a weekly basis.

A study concluded Hong Kong's affluent are also taking their leisure seriously, with substantial increases in the number of participants. Their study found, for example, that there has been 162% increase in the number of people jogging and that there has been a 59% increase in the number of people swimming as well as 112% increase in participation in aerobics all over the past number of years.

5.3. **Outdoor Recreation – Land-based**

The Census and Statistics Department defines outdoor pursuits and water sports as including camping, canoeing, excursion, fishing, hiking, horse riding, kite-flying, orienteering, rowing, sand sculpture, sailing, windsurfing and sports climbing.

The Table 5.1 below illustrates the number of programmes and number of participants between 1998 and 2008. These figures represent formal programmes and not informal participation. Substantial growth has been noted in the number of formal programs offered as well as a number of participants over the last 10 years. The high number in 2008 is due in part to an increase in school sports programmes introduced in 2004 and Hong Kong wide programmes in response to the Beijing Olympics.
Table 5.1: Number of programmes and number of participants between 1998 & 2008

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Outdoor recreation and Water Sports</td>
<td></td>
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<tr>
<td>Number of programmes</td>
<td>2,360</td>
<td>3,591</td>
<td>6,938</td>
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<tr>
<td>Number of participants</td>
<td>72,223</td>
<td>58,901</td>
<td>80,777</td>
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<td>Athletics and Aquatics</td>
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<tr>
<td>Number of programmes</td>
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<tr>
<td>Number of participants</td>
<td>139,463</td>
<td>12,2288</td>
<td>112,489</td>
</tr>
<tr>
<td>All Activities (regardless of type)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Number of programmes</td>
<td>23,304</td>
<td>33,824</td>
<td>46,836</td>
</tr>
<tr>
<td>Number of participants</td>
<td>2,771,667</td>
<td>2,335,174</td>
<td>3,046,805</td>
</tr>
</tbody>
</table>

(Source: CSD 2009)

5.3.1. Country Parks

Hong Kong has an extensive country park network, comprising of 24 formal country parks and 17 special areas totalling 44,000 ha. In 2001, about 11.1 million people visited them. This figure has since grown 12.4 million visitors in 2008-09 and is now estimated to be about 13 million. Most visitation to country parks is limited to picnic sites, although the exact numbers are not known.

Hong Kong is crisscrossed with thousands of kilometres of hiking trails including four main long-distance trails, 12 family trails, 18 nature trails, 28 formal country trails, 30 Walker’s companion trails, and five other trails. The four main long-distance trails are:

- Hong Kong Trail (Hong Kong Island) - 50 km
- Lantau Trail (Lantau Island) - 70 km
- Wilson Trail (Stanley to Nam Chung) - 78 km
- MacLehose Trail (New Territories) - 100 km
5.4. Outdoor Recreation - Water-based

Hong Kong has four Marine Parks and one Marine Reserve totalling 2,430 ha. It is estimated that some 220,500 visits to marine parks were recorded in 2008-09 and that this number is growing steadily. Discussions with water-based tour operators suggest that the popularity of water-based recreation has increased significantly in the past few years. In addition, Hong Kong has 41 gazetted beaches that attracted about 10.5 million visitors in 2008/09.

Water-based recreation involves four major types of commercial activities:

- weekend sightseeing tours targeted at the local community and housing estates
- independently organized cruises and junk trips including banana boat rides, lunch, etc
- scuba diving
- fishing

5.4.1. Weekend Sightseeing Cruises

Weekend sightseeing in water-based tours evolved out of the 2003 SARS crisis where local tour operators had to develop alternate income streams to replace lost inbound and outbound travel revenues. As a result, the local travel trade organized a series of day bus or bus and ferry tours to outlying regions and scenic spots within Hong Kong. Boat trips to the outer islands in the Northeast New Territories, focusing on Lai Chi Wo, Kat ’O, Tap Mun and to a lesser extent Ap Chau and Tung Ping Chau became popular. These tours are offered at a low price to ensure maximum participation. At present, it is not uncommon to see four to six ferries tied up at these islands with over 1,000 people being taken on a guided tour and offered a seafood meal. The price for local tour is around HK$150-HK$200 per person.

These cruises are typically operated by ferry companies who use their ships during non-peak periods. The sector is felt to be mature, with little growth potential.
5.4.2. Charter Boats and Junk Trips

Junk and charter trips have always been popular in Hong Kong, but over the last number of years have grown in popularity, especially in the Sai Kung area. Most involve day trips organized by individuals, businesses, clubs or groups of individuals. These trips tend to fall into one of two broad categories:

- Sightseeing junk trips and cruises that usually involve a meal, swimming and anchorage at a preferred site. A number of companies offer trips from junks with a capacity of about 30 people, up to 85 foot motor cruising yachts.

- Soft adventure trips often involving banana boat trips and other activities which tend to a younger audience. The use of banana boats is regulated under new legislation that requires the operators of these boats to apply for a permit from the Marine Department.

Prices vary significantly depending on the type of boat hired, duration and the diversity of services provided. Prices start at HK$2,500-HK$3,500 per day for eight hours for a boat capable of carrying 35 persons. The price for additional water activities is HK$1,400 for two hours and HK$2,800 for whole day. High end charters offering sailing tours can cost up to HK$17,000 per day for eight hours depending on different type of boat for hiring.

Many fishers in Sai Kung have made the transition to local recreation by investing in the pleasure boat businesses, offering for hire pleasure yacht or taking visitors for water tours, and other water-based activities. Such pleasure boats can accommodate about 30-40 passengers.

It is believed that potential for further growth of these sectors exists. However, this activity is seasonal in nature, with the peak season from May to October. Additionally, it is also dependent on the state of the economy, being popular during periods of growth, but with demand falling dramatically during recessions.
Kaito and speedboat operators based out of traditional fishing villages also offer an additional, though informal, water taxi and tour guiding service. For a small fee, they will shuttle people to the outer islands and either a range to escort them or pick them up at a pre-arranged time. This is a business that evolved organically and has little formal structure.

5.4.3. Diving

Diving is enjoying renewed popularity in Hong Kong, especially as water quality continues to improve. This view was confirmed by representatives of two of the larger diving clubs in Hong Kong. One of the representatives informed the authors that there are dozens of for-profit dive centres mainly with Professional Association of Diving Instructors (PADI) and National Association of Underwater Instructors and that Hong Kong has the highest number of PADI dive instructors per capita of anywhere in the world.

Again, many former fishers are now involved in this industry with several such vessels mostly based in Pak Sai Wan giving scuba diving lessons in Sai Kung waters. They provide such services by operating a vessel transporting learners and their equipment to scuba diving locations. This sector is felt to be in its growth stage.

5.4.4. Deep Water Fishing

Deep water fishing is relatively rare in Hong Kong and not well organized. While there are many keen fishers, discussions with retail outlets suggests that most either engage in ‘rock’ fishing from shore or use small motor boats. Many do not use rods and reels, and instead use a hook and line. The culture of high-end recreational fishing as found in North America does not seem to have developed here.

However, there is a small, elite group of fishers who spend heavily to purchase high end gear. Staff at one fishing supplies store interviewed suggested the average spending for buying fishing equipment could be as high as HK$5,000 for leisure fishing, and up to HK$10,000 for buying.
some more high quality equipment for deep sea fishing.

Likewise, fishing clubs are not particularly popular in Hong Kong. The study team was able to identify only a handful of clubs. Discussions with the executives of these organizations indicate that most have a small number of members and often focus on the participating in international game fishing tournaments and competitions. Fishing club members are largely self-sufficient and, therefore, do not require the services of commercial operators.

Commercial sports fishing seems to still be in its infancy. The study team approached three groups that advertised commercial sport fishing. Two of them appear to be largely inactive. One operator based out of Sai Kung informed the study team that he offers deep water fishing, largely as a promotional activity to support his retail fishing business, but rarely takes anyone on these trips. Instead, in case people ask, he will facilitate trips by connecting potential fisher with local boat operators. A second operator has multiple retail outlets in Hong Kong. This business also operates chartered deep sea fishing and leisure fishing mainly for local residents in Hong Kong. Participants usually go to the South China Sea for 3 days 2 nights (from Friday evening to Sunday afternoon) for deep sea fishing. The business arranges some tours during March to September at a fee of around HK$2,000 per person for 3 days 2 nights. The number of participants per tour is less than 15 person plus one tour guide. But, like the previous operator, when pressed for further details it is evident that very few people participate in this activity and that while trips may be offered, they do not always run. The third operator takes between 6 and 15 trips a month during the season from July to November.

5.4.5. Other – Mariculture Recreation

It is felt that some mariculture operators have the potential to make the transition from fish farming to tourism. At present, this has occurred in only a few instances. The site visit to numerous mariculture operations suggests that their tourism potential is limited. Most are working fish farms dedicated to raising fish for the commercial restaurant trade. Facilities are very basic, this scale is small and most lack appropriate sewage and other services. Current licenses also preclude the fish farmers from offering additional services such as food and
beverage opportunities, etc. Moreover, the nature of the operations is such that the transition from working farm to tourism attraction which necessitate substantial capital investment.

At present, the AFCD indicates that ten fish culture zones with rafts allowed to conduct recreational fishing. They are Yung Shue Au, Kau Sai, Tai Tau Chau, Kai Lung Wan, Sham Wan, Tung Lung Chau, Ma Nam Wat, Sok Kwu Wan subzone B, Yim Tin Tsai (East), and Yim Tin Tsai.

The application for consent to practise recreational angling on mariculture rafts is relatively straightforward and the AFCD has developed the Code of Practice. The application notes and the Code of Practice are included in Appendix E.

5.5. Conclusion

A significant and growing minority of Hong Kong residents is actively engaged in outdoor recreation, with an ever increasing number participating in water-based activities. These individuals represent the primary market for the development of commercial nature-based recreational activities for the fishing sector.
6. From Fishing to Water-based Tourism

The purpose of this study is to identify career transition opportunities for the fisheries community that is facing an uncertain future. Tourism and water-based recreation has been identified as one option available to some members of this community. This chapter reviews some initiatives already undertaken within Hong Kong as an illustration of potential opportunities. It also identifies key success factors.

6.1. Sai Kung: A Fishery in Transition

The fishing community in Sai Kung has largely made the transition from commercial fishing to water-based recreation. For years, water tours in a kaito from Sai Kung Pier to neighbouring islands such as Sharp Island, Half Moon Bay, Kau Sai Chau, Yim Tin Tsui, and High Island have been popular. Sai Kung has a number of advantages that are not found elsewhere. It is easily accessible with ample parking, has beautiful natural scenery, clear water, and quality environment, has a well established seafood restaurant trade and is proximate to small islands and the newly formed Hong Kong National Geopark.

With respect to alternatives to traditional livelihoods, a number of changes were noted that provide lessons for other communities facing a similar transition:

- Most of the fishers in Sai Kung have already changed their livelihood and are no longer in fishing nowadays. A small number of older fishers are still active. Their vessels are small and they appear to be involved mostly in bait or feed fishing.

- Other fishers have become active in the floating fish market at the Sai Kung pier. They may sell some of their catch but are more likely to purchase fish and seafood wholesale and then retail it to the public. They also sell the dried fishing products (such as dried shrimps, shrimp paste, sea cucumber etc) which are sourced from elsewhere.
• Others have invested in the pleasure boat business by offering for hire pleasure yachts and taking visitors for water tour, recreational fishing and other water-based activities.

• Alternately, they provide or captain vessels for the numerous scuba diving clubs and businesses.

• Sport fishing, though, seems to have limited potential. It is not a popular activity, is more expensive, adventurous, and calls for longer time commitment in a single fishing trip.

Strong community support for water-based tourism development in Sai Kung exists. The Sai Kung District Council has been working with local non-governmental organizations since November 2008, sponsoring them to organize “Eco-tour Guide Training” programmes for local residents. The eco-tour guides introduce to tourists the geology and landform, natural environment, history and culture in Sai Kung, and help enhance awareness of conservation in Sai Kung.

The “Sai Kung Geo-Heritage Information Centre” was set up recently to promote awareness of Hong Kong National Geoparks and local tourism in Sai Kung. Initiated by AFCD and co-organised by the Hong Kong National Geopark, National Geopark of China, Sai Kung District Council and Sai Kung District Community Centre, a pilot scheme providing guided tour of Sai Kung Volcanic Rock Region was launched with the goal of providing information and arousing public awareness on conserving the valuable geological features of the Geopark.


The Northeast New Territories has a number of similarities to Sai Kung, including beautiful natural scenery, picturesque landscapes, marine parks and a segment of the Hong Kong National Geopark. It also has a large, remnant fishing heritage. The outer islands, in particular, hold great
potential for pristine and near pristine eco activities.

But as the 2002 study summarised earlier identified, it is disadvantaged by poor access, and especially by restricted access to outer island through the Frontier Closed Area gateway of Shau Tau Kok. Access to the outer island is, instead gained by boat from Tai Po, which required a journey of between one and three hours, depending on the speed of the vessel. By contrast, access from Shau Tau Kok by speedboat takes 15 minutes or less.

The Tolo Channel has a number of historic attractions, including old pearl culture fields and abandoned structures and some abandoned villages. Access can also be provided to the Plover Cove area. This area also has spectacular rock formations. Further along the coast, as one enters Double Haven the scenery changes to pristine hills and calm waters. Soft and hard corals can be seen from the clear waters. The area is also popular as an anchorage for luxury yachts. Villages in Kat O and Tung Ping Chau have also been developed to serve tourists. Kat O is a popular lunch destination for the type of ferry day trip discussed earlier. Tung Ping Chau is popular with campers and divers.

Poor access is the greatest inhibitor of further development of this area. Opening up Shau Tau Kok in a controlled manner to visitors would increase visitation, as would enabling speedboats owned by fishers there to shuttle passengers to and from outer island and the eastern shores of the Plover Cove Country park would greatly enhance its tourism potential.

6.3. Hong Kong National Geopark: High Ecotourism Potential

The development of the Hong Kong National Geopark also holds potential for growth. It can be accessed from both Sai Kung and the Tolo Harbour. The proximity of Sai Kung to the Geopark and marine parks makes it feasible to develop itineraries or packages for marine ecotourism, Geopark visits, and fishing heritage appreciations. The Geopark is just 2,000 metres or 20 minutes away by boat. On the western edge of the Sai Kung caldera, Sharp Island is covered by various volcanic rocks formed earlier than the hexagonal columns, including volcanic bomb, quartz monzonite and eutaxite of unique forms and appearances, with some look like a pineapple
bun. To the west it is connected to a small island called “Kiu Tau” by a tombolo, where visitors can enjoy a scenic walk in the geo trail. In the highest point of Kiu Tau, visitors are greeted by the view of Clear Water Bay Peninsula, Razor Hill and High Junk Peak in the distance. There is also a sand beach surrounded by reefs. Kiu Tsui Country Park is the smallest of its kind in Hong Kong with only 100 hectares of island territories. Notably, there have already been varying degree of developments, particularly along or because of the construction of the Hong Kong National Geopark – Kiu Tsui Country Park.

6.3.1. Marine Based Guided Tour Pilot Project

The AFCD is organizing a number of marine-based guided tours in the fourth quarter of 2010 as a pilot scheme to involve fishers in tourism activities. The pilot scheme gives fishers an opportunity to share their experience and knowledge with tour participants and to ascertain the effectiveness of engaging fishers in such a tour. There are two routes, one covers Tolo Harbour (www.hktraveler.com/template_2010/HKFish/chi/route_02.htm) and one covers Sai Kung (www.hktraveler.com/template_2010/HKFish/chi/route.htm). The observation below is based on the tour in Tolo Harbour on 18 November and the tour in Sai Kung on 9 December 2010.

The marine-based guided tour is an exploration of fisher’s culture, marine and geo-resources in Hong Kong. The tour takes about 3.5 to four hours. The participants in the above tours included some 20 high school students. The Tolo Harbour tour started from the Sam Mun Tsai pier in Tai Po at 9:30 am, and finished at 1:00 pm, while the Sai Kung tour departed from Sai Kung New Public Pier at 8:40 am and ended at about 12:30 pm. For both tours, the support team comprised two fishers, one captain, one coxswain, one safeguard, and some helpers from a community organization called 乐在渔港. Among the helpers, one is an eco-tour guide, one is from a fishing family and one is a volunteer. An information pamphlet is distributed to each of the participants at the start of the tour.

The group travelled in a vessel which is clearly identified with a banner featuring “Marine-based guided tours – exploration of fisherman culture, marine and geo-resources in Hong Kong”. During the boat tour, the eco-tour guide introduced the history and culture of fishing to the tour
participants; he also explained geological features and rock formation in Sai Kung and the North East New Territories. The guide’s presentation was occasionally facilitated with video shows and the display of real objects. He also pointed to the birds migrating to and staying in Hong Kong for a season and mentioned the rich marine resources in the area.

For the Tolo Harbour tour, there are four points of interest where the vessel stopped for exploration by the students: Lai Chi Chong, Yung Shue O, fishing demonstration in a bay area, and fisherman’s culture gallery. On arriving Lai Chi Chong, part of Hong Kong National Geopark, the group spent about 30 minutes on shore. The guide pointed out different kinds of volcanic rocks and explained the formation to the students. After Lai Chi Chong, the vessel continued to Yung Shue O, which is one of the marine culture zones. The group spent 30 minutes on a fish raft. After Yung She O, the vessel started to head back to Sam Mun Tsai. On the way back, two fishermen demonstrated how to weave a fish net and invited a student to weave together. They explained different kinds of fishing methods and vessels. They also explained how to use net and cage for fishing. As we reached a bay area, two small fishing boats were waiting for us. One fisherman demonstrated the use of a fish net in one fishing boat, and another fisherman demonstrated the use of fish cage in another fishing boat. In about 15 minutes, they were able to catch fish with their net and cage, and they showed the fish to the students.

On arriving Sam Mun Tsai, the group spent the last 15 minutes in The Salvation Army North East New Territory Fisherman’s Culture Gallery of about 50 square metres in area. The Gallery is a mini museum of the fisherman’s history, livelihood, tools, and way of life. The tour finished after the visit to the gallery.

The Sai Kung tour went through Tai Tau Chau and High Island Reservoir, and stopped over at Leung Shuen Wan for about an hour for the students to watch fishers’ live demonstration of capture through nets and traps, followed by a guided tour to the Tin Hou Temple. The return trip to Sai Kung featured Geopark visit on the cruise from Jin Island to Kiu Tsui Country Park and Sharp Island. Before the tour ended at its starting point, some interactions were made amongst the participants and the guide. The students appeared to have enjoyed outdoor learning through this tour. Two student representatives were invited to present on post-tour reflections.
Notably, study tours as such have enhanced participants’ understanding of the fishing heritage and fishery in Hong Kong combined with outdoor learning of geology via visits to Hong Kong National Geopark.

6.4. Recreational Fishing on Mariculture Rafts: Specialist recreation opportunities

As mentioned, the AFCD will licence certain recreational activities on mariculture rafts, providing that they do not interfere with the fishing environment and that safety considerations are made. At present, only a small number of individuals have taken up this opportunity. The study team visited one such operator in the Wong Shek area.

The operator was in the marine culture business for 20 years, and before then he sailed as far as Fujian waters to fish. He saw the decline of mariculture business a few years ago, and started to diversify. He now owns several boats of different sizes, and offers different kinds of water-related leisure activities based on his raft. His business offers fishing on rafts, fishing away from rafts, transportation service hopping between piers and beaches, and scuba diving. He also has dining facilities and licensed restroom facilities.

The business is still small and is highly seasonal. It is also estimated that start-up costs are high (up to several million dollars). Currently, the number of visitors is small (30 to 40 on a weekend), and includes repeaters. They are price sensitive. However, it has the potential to grow if properly financed and marketed. Successful operators must provide a range of products and services. Those that have good access to attractive hinterlands, beaches and corals appear to have an advantage over others.

Opportunities exist to provide a wider range of recreational activities including sea kayaking, canoeing and other self-propelled activities. Snorkelling and education programmes can also be developed. A further opportunity exists to develop such programmes for school children.
6.5. Lamma Island: The Building of Fishing Heritage Attractions

Lamma is one of the outlying islands in Hong Kong that still keeps traditional fisher lifestyle in its villages. To capitalize on this heritage, a group of fishermen in the community had the vision to convert fishing rafts into visitor attractions to showcase the local fisher folks’ culture and the history of fishery in Hong Kong. Inspired by the notion of “a floating home of the fishers”, the Fisherfolk’s Village is a built attraction for leisure fishing and water-based recreation.

The Village has been in existence for five years. Planning started in 2004, with its grand opening in March 2006. It covers an area of over 2,800 square metres and can accommodate up to 800 people at a time. The converted attraction comprises authentic fishing junks, traditional dragon boats, models of fishing boats, an exhibition hall, themed fisher folks’ booths, and fishing rafts and dwellings, from which visitors can learn and appreciate the heritage of a fishing village and lifestyle of its people. The Village is promoted via media such as brochures, posters at the airport, and a website. The “fisherfolks” is also registered in the Facebook. The logo of the Village - the model of a traditional fishing boat - even appears in staff t-shirts, uniforms and flyers of events and packages.

Both the owner and the manager of the operation are local fishermen. The fisher folks use their own traditional fishing boats for live demonstrations of their culture and lifestyle. In addition to the display of “goods”, a variety of themed activities are offered. For example, visitors can fish with or without hooks in different ponds on the floating rafts and take home their capture after paying a fee. They can also feed fish and touch rare fish species in the ponds, and practice casting nets and pulling sails on a boat. As something to take home, dried seafood from the gift shop of the Village adds to the diversity of visitor experience.

Over the years, the attraction has enjoyed strong community support. Many fishing rafts in Sok Kwu Wan are willing to participate in offering programmes and activities to visitors. In addition, local fishermen donate rare fish species for sightseeing; they also donate traditional/typical fishing tools and instruments for display, or work as volunteers during festivals and events.
organized by the folk culture village.

The Village mainly appeals to local Hong Kong residents. The visit during weekends or school vacations. It attracts some inbound tourists, mainly from Mainland Chinese. The Village is often visited by students from elementary and high schools for study tours because it features a fishing classroom and an exhibition of antique fishing tools.

The operation has twelve employees. Most of them are local fishermen, including three full-time tour guides. Based on staff interview, annual operation costs of the Village are found to be around HK$2 million, with the largest expense being staff salary. The Village operated at a loss from its opening in 2006 and only until 2010 has it started to make a profit.

A number of issues are identified from the field research:

1) To win maximum community support to further expand the operation of the folk culture village is likely to be a challenge. Currently, there are still some fishers in Lamma not in support of leisure fishing by means of further developing the folks’ village.

2) The ability to expand the Village operation to offer new products and services (e.g., to include home stay and accommodation, as well as BBQ) is restricted by regulations from different government departments.

3) The gradual loss of intangible heritage (e.g., weather knowledge, survival skills during a storm, “old” customs and traditions, etc.) will reduce the richness of this heritage attraction to “tell the story of a fishing village”, because its staff are getting younger and fewer experienced/senior fishermen are involved in the attraction operation.

Nonetheless, the Lamma Fisherfolk’s Village serves as a good instance for the preserving of community heritage and the building of fishing tourism attractions in other locations.
6.6. Cheung Chau – Celebrating Traditional Fishing Culture

Cheung Chau is one of the few fishing villages which have survived urbanisation although the scale of commercial fishing activities has diminished over the past 30 years. There is still a small fishing community comprising some 100 vessels. In the midst of transforming from a fishing village to a more diversified community, Cheung Chau has retained and preserved the fisher culture remarkably well.

The fisher culture in Cheung Chau is epitomized by the Bun Festival, which began as a serious ritual for fishers to pray for safety from pirates, health from plagues, and sanity from evil spirits. Today this religious origin has largely been replaced by fun and excitement of celebration, floats, parades, and competition. While the festival is still officially held to pay respect for the gods who saved the fishing community, it has mainly become a showcase of beliefs. The Bun Festival has been promoted by the Hong Kong Tourism Board heavily as a major festival. Since 2000, the festival has gained popularity among the local community and tourists who are keen to learn about and experience local Hong Kong culture. Each year Cheung Chau celebrates the Bun Festival to tie in with the public holiday of Buddha’s Birthday.

Cheung Chau has developed an image of being a weekend getaway for the local community. The island has a small hotel, bed and breakfasts and a large number of holiday houses. Together with its beach, ease of accessibility, walking trails, seafood restaurants, Cheung Chau has firmly established itself as a local tourist destination.

Generally speaking, Cheung Chau has a strong island culture which is rooted in traditional fisher heritage, legacy, religion, and celebration. A committee member of the Pak She Kaifong Association in Cheung Chau, who has witnessed the decline of fishery, is of the opinion that the fishers could try to innovate and seek change. He is highly supportive of preserving the fishers’ history and way of living in the form of museums and events. By preserving the rich fisher culture and heritage, the island as a whole could further develop its tourism appeal. Together with the now highly successful Bun Festival, there is room for Cheung Chau to host a second event like Tin Hau Festival to reinforce its position in celebrating heritage.
Cheung Chau may also have an ideal site for developing a fisher museum. The site is currently occupied by a cinema which has been abandoned for over 20 years.

6.7. Tai ‘O: New Employment Opportunities in Ecotourism

This fishing village of Tai ‘O located on the far western end of Lantau island is famous for its stilt houses, salt pans and fish paste industry. It was also an important fishing village. The Hong Kong Tourism Board decided to promote the unique architecture and remaining tangible heritage as part of a new tourism node focusing on the Giant Buddha, Ngong Ping 360 tramway and the Tai ‘O the fishing village. The result is that the village has been transformed to a vibrant community serving a primarily local leisure market. Shops on the main street have been transformed to selling dried fish goods, fish paste and a variety of other souvenirs. The restaurant sector has also been revitalized.

Younger members of fishing families saw an opportunity to develop sightseeing tours of Tai ‘O’s houses and, when weather and other conditions are suitable to take people into the sea lanes between Hong Kong and China to look at the pink dolphins. Each boat can take about 15 people on a 20 minute trips. The cost per trip is HK$20 per person. About 15 to 20 boats offer these trips throughout the entire day.

The businesses are both cyclical and seasonal. Tai ‘O is busy to overcrowded on the weekends and public holidays but it is relatively quiet during the rest of the week. It is also busy year in the summer than it is in the winter. However, having stated this observation, it is evident that an opportunity exists to create the equivalent full-time employment positions or to supplement income significantly. It is estimated that each boat can generate at least HK$500 per hour during weekend operating hours which equates to gross income of between HK$25,000 and HK$30,000 per month, depending on the weather and crowding conditions. Next income is clearly lower as operating costs, insurance, petrol and other costs must be considered.
Interestingly, this sector which seems to have evolved organically involves primarily younger members of the fishing community. Most appear to be under 40, indicating that alternative employment exists for younger family members in selected communities.
7. Issues and Opportunities

This Chapter analyses the issues and opportunities identified in this report. From here, a series of recommendations will be developed. The issues and opportunities are discussed under the following areas: policy and regulatory issues, natural resources, product, target market, finance, and people.

7.1. Policy and Regulation

Conservation of fisheries, the maintenance of Hong Kong’s link to its fishing heritage and a range of issues relating to career transition must be addressed at the policy level by the Hong Kong SAR Government. Some of the issues identified transcend fishing tourism and water-based tourism, and relate to preserving the fisherman culture as part of the Hong Kong heritage asset. The following analysis is based on desk research and the consultants’ understanding of community sentiments through field research.

At present, the ability of many fishers to enter the commercial recreation/tourism sector is inhibited by restrictive legislation that precludes fishing boats from carrying passengers, limits recreational opportunities or prohibits the development of creative opportunities.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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</thead>
<tbody>
<tr>
<td>Is there political will to conserve/preserve Hong Kong's traditional fishing culture? Does the community as a whole identify with the traditional fishing culture and support the initiative?</td>
<td>The consultants are of the opinion that fishing culture belongs not just to the fishing community but the location as a whole. Fishing is a traditional activity in Hong Kong and an important aspect of the history, cultural identity and collective memory. Fishing is so salient and symbolic in Hong Kong that the Hong Kong Tourism Board still uses a stylised fishing junk as its logo. The community would</td>
</tr>
<tr>
<td>Are career transition schemes, such as vessel buy-out and trawl ban, appropriate and sufficiently attractive to support career transition?</td>
<td>Many studies have identified the need to control the number of fishing vessels for sustainability and recommended the implementation of various schemes to manage fisheries and rebuild stocks. The fishing community is also supportive of such measures in principle. The key is to develop alternative livelihoods programmes before the implementation of such schemes.</td>
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<tr>
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</tr>
<tr>
<td>Restrictions on access to the Frontier Closed Area (FCA) limit the potential of developing water-based tourism in the far Northeast New Territories.</td>
<td>The Hong Kong SAR Government is aware of public aspirations for minimising the FCA restrictions, and has proposed to reduce substantially the coverage of the FCA including Sha Tau Kok. The Hong Kong SAR Government is prepared to allow organised tour groups to use the Sha Tau Kok public pier to access the outer islands and the east coasts of the northern New Territories.</td>
</tr>
<tr>
<td>Are current subsidies and other levels of support to the sector suitable, sustainable and effective?</td>
<td>The fishing community is aware of the over-fishing situation in Hong Kong, and the Hong Kong SAR Government has introduced a number of initiatives to conserve the fisheries over the years. In terms of economic benefits, both fishers and society would likely increase their long term benefit by moving away the current status quo management.</td>
</tr>
<tr>
<td>Cross-border issues relating to fisheries management practices require the support of the Chinese Mainland authorities.</td>
<td>There are already established cross-border communication channels and recognition by the Chinese Mainland authorities of the need to conserve the fisheries.</td>
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<tr>
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</tr>
<tr>
<td>Current regulations restricting carriage of passengers. Unclear regulations concerning water taxis.</td>
<td>There is in-principle interest from departments concerned to consider liberalisation of the current regulations if passenger safety is addressed properly. Existing informal water transport service is popular and provides supplementary income to fishers.</td>
</tr>
<tr>
<td>Current restrictions regarding the use of fish rafts for recreational activities.</td>
<td>The existing regulation permits recreational use of fish rafts. There is room to liberalise the regulation to enable a wider variety of uses including food preparation and accommodation if hygiene and environmental concerns are addressed.</td>
</tr>
<tr>
<td>Restrictions on the sale of mariculture licences and issuance of new licences.</td>
<td>The demand for mariculture licences would increase if current restrictions regarding the use of fish rafts for recreational activities are relaxed.</td>
</tr>
<tr>
<td>Unclear regulations regarding houseboats and overnight boating accommodation.</td>
<td>There is opportunity for small-scale overnight houseboat tours especially in the Northeastern New Territories and in the Hong Kong National Geopark, where people could take one to three night tours to explore this region if supportive regulations are in place.</td>
</tr>
</tbody>
</table>
Unclear regulations about bed and breakfast accommodation. Many remnant villages have structurally sound houses owned by fishers that could be converted into B&B style accommodation to provide an additional income stream.

### 7.2. Resource Management

Ultimately, the development of fishing tourism is dependent on sustainable fisheries resources. While revitalising the fisheries is beyond the scope of this study, this issue must, however, be raised. Below are some of the key issues affecting the sector. The analysis is based on desk research and discussions with fishers.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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</thead>
<tbody>
<tr>
<td>Feasibility of reversing or slowing the decline in the fishery.</td>
<td>Initiatives were introduced to protect the fishery such as fishing moratorium and artificial reefs with some varying degrees of success. There is room for more vigorous fishery management such as banning trawling in all Hong Kong waters, banning all kinds of fishing in Marine Parks, and creating no-take zones in important nursery grounds.</td>
</tr>
<tr>
<td>Ability to develop a more sustainable fishery.</td>
<td>There is opportunity to maintain a sustainable fishery with a smaller and inspirational fishing community supported by new initiatives to enhance/rehabilitate the fishery.</td>
</tr>
</tbody>
</table>
Effectiveness of fishing support initiatives such as re-stocking.

The fishing community would welcome any kind of fishing supportive initiative, however, such initiatives would only be effective in the long term if they are implemented together with vigorous fishery management.

Ongoing impacts of urbanization, development in both Hong Kong and the Chinese mainland, resulting in water quality deterioration.

There is evidence of quality improvements in Hong Kong waters as a result of enhancement of drainage and sewage treatment in recent years. The requirement of Environmental Impact Assessment for major development projects also helps ensure compliance with the water quality standards.

7.3. Product

Product issues relate to two broad themes. The first addresses how fishing and other water-based tourism can be integrated into the larger Hong Kong tourism sector. Some real issues arise, especially in terms of compatibility with destination image and product range. The second relates to product development issues and opportunities that are specific to this study. The analysis is based on discussions with and observations of tour operators as well as an interview with the Hong Kong Tourism Board.
### 7.3.1. Water-based Tourism as a Niche Product

<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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<tbody>
<tr>
<td>Compatibility of Hong Kong’s destination image with fishing or water-based tourism.</td>
<td>Hong Kong has been promoted as a vibrant, international city, and events and culinary capital of Asia by the Hong Kong Tourism Board. The four pillars used as the basis for marketing the destination are shopping, dining, culture and heritage, and green. In an attempt to meet the desire of some special interest tourists, Hong Kong has also promoted the “Great Outdoor” including the Hong Kong National Geopark, Hong Kong Wetland Park and walking trails. However the popular destination image of Hong Kong is still not strongly associated with fishing or water-based activities. Nonetheless, there might be niche product potential for high end tourists who are interested in fishing or water activities.</td>
</tr>
<tr>
<td>Little interest by the mainstream travel trade in developing fishing tourism products.</td>
<td>As a market driven industry, the travel trade would not take the risk of developing such products which have low demand. However there might be small-scale deep water fishing opportunities.</td>
</tr>
<tr>
<td>Many existing local tours driven by high volume/low price/low margin business model.</td>
<td>There is proven demand among the local community in water-based activities as illustrated by the active leisure boat market in Sai Kung. There is opportunity to upgrade and enrich the tourism products.</td>
</tr>
</tbody>
</table>
### 7.3.2. New Product Development

<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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</thead>
<tbody>
<tr>
<td>Access restrictions – increasing costs and limiting demand.</td>
<td>Reduction of restrictions on access to the Frontier Closed Area would allow easier access to some Marine Park area.</td>
</tr>
<tr>
<td></td>
<td>Many attractive, undeveloped and near pristine outer islands in Hong Kong (especially in Sai Kung and the North-east New Territories) can offer a range of nature-based tourism activities.</td>
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<tr>
<td></td>
<td>Some abandoned villages present interesting histories that could be of interest to local residents. These locations could be made more accessible if water-taxi type of transportation is made more available.</td>
</tr>
<tr>
<td>Potential and suitability of converting existing fishing vessels to water-based recreation facilities / High costs of purchasing suitable equipment for water-based recreation.</td>
<td>The investment may lead to the emergence of small volume/high price specialist tours.</td>
</tr>
<tr>
<td>Product diversification</td>
<td>There is potential to transfer successful product developments to new locales, such as the fish market in Aberdeen, folk village in Lamma Island, and festivals in Cheung Chau.</td>
</tr>
</tbody>
</table>
### Seasonality of water-based tourism product

- Seasonality of water-based tourism product means that business is not year round.
- Fishing community is accustomed to the seasonality of fishing livelihood, and would adjust to different kinds of seasonality in tourism.

### Limited growth potential for pink dolphin tour

- Limited growth potential for pink dolphin tour.
- There is potential to broaden market base with the development of scuba diving, boat chartering, and other water-based recreation.

### Inadequate information and difficulty of finding information about water-based recreation

- Inadequate information and difficulty of finding information about water-based recreation.
- The widespread use of Internet could help the distribution of information, which may imply an opportunity of educating the fishing community about information technology.

### Ecotourism and geotourism

- Ecotourism and geotourism
- Well-established and well-managed Country Park and Marine Park provide nature-based recreation throughout the year. Hong Kong National Geopark adds variety to the recreation.

## 7.4. Marketing

Identifying a suitable target market that is willing to pay a fair commercial rate for water-based recreation is vital. The study suggests that the local recreation market is large, active and relatively untapped. They represent the primary user group. However they are price sensitive and are used to paying well below international commercial rates.

Tourists are likely to represent a supplementary source of income. However potential from the tourism market is small, and it takes much effort and time to develop the market. Only a few specialist operators may be able to enter this market segment.
<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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<tbody>
<tr>
<td>Water-based and nature-based activities do not have a sufficiently</td>
<td>There is a need to identify special interest tour operators, and the</td>
</tr>
<tr>
<td>wide appeal to the tourist market.</td>
<td>relevant departments could work with them to develop and modify the tour</td>
</tr>
<tr>
<td></td>
<td>products.</td>
</tr>
<tr>
<td>Low participation rates in nature-based tourism activities.</td>
<td>Hong Kong Tourism Board is promoting the “Great Outdoors” to further</td>
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<tr>
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<td>enhance the destination’s appeal. It requires consistent and long-term</td>
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<tr>
<td></td>
<td>efforts to make water-based activities become significant tourism activities.</td>
</tr>
<tr>
<td>Awareness of water-based activities amongst local residents.</td>
<td>There is evidence of increased health consciousness and interest in fitness</td>
</tr>
<tr>
<td></td>
<td>and leisure among Hong Kong residents. The local residents could form a</td>
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<tr>
<td></td>
<td>potent market given continual promotional effort and greater efforts to</td>
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<tr>
<td></td>
<td>improve accessibility.</td>
</tr>
<tr>
<td>Local residents’ perceptions of water recreation as a low cost activity.</td>
<td>Demands for Country Park and Marine Park are high and growing among Hong</td>
</tr>
<tr>
<td></td>
<td>Kong residents. A significant minority of them are actively involved in</td>
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<tr>
<td></td>
<td>outdoor recreation. As the water-based recreation market grows, there</td>
</tr>
<tr>
<td></td>
<td>could be room for further segmenting the market into premium and more</td>
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<tr>
<td></td>
<td>competitively priced products. Outdoor recreation activities such as</td>
</tr>
<tr>
<td></td>
<td>scuba diving and deep sea fishing are examples of premium products.</td>
</tr>
</tbody>
</table>
7.5. Financial Considerations

Financing remains a largely unresolved issue. The costs associated with career transition may be high and the capital assets of small-scale fishers may be modest. Their ability to change careers may be limited unless suitable financing arrangements are provided.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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<tbody>
<tr>
<td>High cost of converting from fishing to other leisure/recreation activities; insurance costs associated with carrying passengers.</td>
<td>Fishermen who have such needs may apply to the Fisheries Development Loan Fund for low interest loans to put their plans of switching to other fisheries operations into action. The Hong Kong SAR Government is considering a one-off voluntary trawler buy-out scheme and an ex-gratia allowance to eligible fishermen. The loan and the buy-out scheme could also be developed to cover retrofitting fishing vessels for tourism purposes.</td>
</tr>
<tr>
<td>Will the buy-out scheme be sufficient to enable operators to make the transition from fishing to other water-based activities?</td>
<td>Initial feedback to the buy-out scheme from the fishing community is positive. The Hong Kong SAR Government could consider if the buy-out scheme would be widened to cover all fishing vessels and allow transition of career to other water-based recreational activities.</td>
</tr>
</tbody>
</table>
7.6. Human Capital and Capacity Building

The issue of human capital falls into two categories. The first reflects leadership by key stakeholders who are willing and able to initiate change. The second relates to the individuals themselves who will be making the career transition. The analysis is based on interviews with fishers and fishing community leaders.

7.6.1. Leadership

<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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<tbody>
<tr>
<td>Pessimistic outlook among older fishers about the future of fishing as a career in Hong Kong.</td>
<td>There is a need to preserve the older fishers’ knowledge and expertise as part of Hong Kong’s heritage. There is evidence of some younger people wanting to preserve Hong Kong’s collective memory. They could play an important supporting role in the preservation of fishing culture.</td>
</tr>
<tr>
<td>Fragmented leadership among the fishing community.</td>
<td>There is general consensus among the community leaders to look for alternative livelihood, however, they have different interests and do not necessarily hold a consolidated view about the way forward. There is a need to form a unified body to lead the fishing community in seeking alternative livelihood in fishing tourism. They can share among themselves some success stories of transition.</td>
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</table>
### 7.6.2. Fishers

<table>
<thead>
<tr>
<th>Issue</th>
<th>Opportunity</th>
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</thead>
<tbody>
<tr>
<td>Employment potential of water-based recreation – whether water-based</td>
<td>The fishing community consists of older individuals running small family owned businesses. Many fishermen are close to or at retirement age, and they could choose to continue with the current practice either to make a living or keep themselves occupied with something they grew up with. Those who choose to seek alternative livelihoods should be informed of the potential and risk of the transition into recreation. It seems that the younger generation are more receptive to the transition in livelihood.</td>
</tr>
<tr>
<td>recreation would replace all jobs lost.</td>
<td></td>
</tr>
<tr>
<td>Succession planning</td>
<td>Many fishers are interested in retaining some type of tie to the water; whereas, most of the younger generation is not interested in fishing. There is opportunity for some younger people to continue with traditional form of fishing if the fisheries in Hong Kong waters could be restored and sustained.</td>
</tr>
<tr>
<td>Interest and ability of some fishers to take the personal and financial</td>
<td>It is stated in the 2010 Policy Address that training and technical support will be provided to help those fishers switching to other sustainable fishing operations, including aquaculture and leisure fishing.</td>
</tr>
<tr>
<td>risk of changing the business.</td>
<td></td>
</tr>
</tbody>
</table>
Skill level of operators to work in tourism, including language, literacy and communication skills.

In order to help fishers with their transition into water-based recreation and tourism, it is necessary to provide custom-made training programmes for them. There is opportunity for different institutes to provide adult education and training in leisure, recreation, and tourism.

7.7. Summary

The future of commercial fishing in Hong Kong is uncertain and many involved in the fishing sector must either make a career transition to other activities or risk leaving employment. Tourism and commercial recreation have been mooted as possible avenues for alternative employment and career transition. This study and others before it reviewed here indicate that some potential exists for entrepreneurial fishers to make the transition. The study highlighted a number of successful cases where entire communities (i.e., Sai Kung and more recently Tai ‘O) have made the transition and where individuals elsewhere have developed alternative income streams. However the study also identified a wide range of policy, regulatory, structural and resource issues that will limit the ability of fishers to make the transition from one sector to others.
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[http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=6328104](http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=6328104)


Synovate (2005) Synovate survey shows Hong Kong affluent tuning in and toning up.  


**Glossary of Terms**

**Aquaculture (水產養殖業)**

The farming and raising of saltwater and freshwater animals (such as fish, seaweed and shellfish) or plants to be used as food for humans.

水產養殖業是指在海水或淡水裏從事諸如魚類、貝殼類以及海藻類生物養殖，以滿足人類食用需求之產業。

**Artificial reef (人造珊瑚)**

A man-made underwater structure built for the purposes of promoting marine life.

為改善海洋生物環境而人工製造之珊瑚礁。

**Banana boat (香蕉船)**

Inflatable banana-shaped recreational boats used for towing or riding.

香蕉形狀之橡皮艇，用於拖船載人等水上遊樂活動。

**Bed-and-breakfast (含早餐的簡易宿泊設施)**

An establishment that offers overnight accommodation and breakfast, either on a boat or on land.

帶早餐的陸地或水上簡易宿泊設施。

**Bio-diversity (生物多樣性)**

The diversity of plant and animal life in a marine habitat.

海洋環境內動、植物的多樣性與差異性。

**Blue water fishing (海水垂釣)**

Recreational fishing in the ocean or deep sea areas. See also Deep water fishing.

在海裏開展的遊樂性垂釣活動。另見深水垂釣。
Bun Festival (太平清醮)

A week-long cultural festival annually held in Cheung Chau around the eighth day of the fourth month in the Chinese Lunar Calendar.

每年農曆四月初八前後在長洲島開展的、為期一周的文化節慶。

Caldera (火山口)

Volcanic crater.

火山口。

Capture fishing (捕魚業)

A mode of fishers’ livelihood based on wild captures as opposed to fish farming.

與養殖業相對應，漁民以捕撈野生魚類而賴以生存之生計。

Certificate of Inspection (檢查證明書)

Certificate issued by the Marine Department to certify that the vessel is examined by authorized surveyor.

檢查證明書指由海事處簽發之證書，證明船隻已由特許驗船師檢驗過。

Certificate of Ownership (擁有權證明書)

(Of a local vessel) the certification of ownership issued under the Merchant Shipping (Local Vessels) Ordinance section 89.

就本地船隻而言，指根據商船(本地船隻)條例第89條而簽發的船隻擁有權證明書。

Certificate of Survey (驗船證明書)

A certificate granted by an authorized surveyor under section 14 of the Merchant Shipping (Registration) Ordinance, specifying the ship's tonnage and build, and such other particulars descriptive of the identity of the ship as may for the time being be required by the Director of Marine.
驗船證明書指由特許驗船師根據商船(註冊)條例第14條發給的證明書，該證明書注名了船舶的噸位與構造，以及按照海事處處長暫時規定，用以描述船舶身分的其他資料。

Code of Practice for Recreational Fishing on Mariculture Rafts (魚排閒釣守則)

When fishing on mariculture rafts, anglers should follow the Code of Practice for recreational fishing and refrain from conducting activities that interfere with mariculture operations in any way. These include, but are not limited to, cooking; barbecuing; littering; polluting the water; conducting other water sports; making excessive noise; the use of net, trap or chum bait; and conducting activities outside an authorized area.

釣魚人士在魚排上進行休閒垂釣時，必須遵守「魚排閒釣守則」，不許開設任何滋擾養殖魚操作的活動。這些活動包括(但不局限於)煮食、燒烤、亂拋垃圾、染汙海水，從事其它水上運動、製造噪音、使用網、浸籠或誘餌粉捕魚，以及在許可範圍以外開展活動等。

Consent of Recreational Angling on Mariculture Rafts(魚排休閒垂釣同意書)

Consent letter issued by Agriculture, Fishery and Conservation Department for anglers to conduct recreational fishing in rafts.

漁護署簽發的同意書，以便釣魚人士選擇在已獲准許的魚排上進行休閒垂釣。

Coxswain (船長)

Steersman of a boat.

駕駛船隻的船員。

Crew (船員)

Coxswain and any other person employed or engaged in a capacity on board of a vessel on its business.

以被雇傭身份或開展工作之形式停留在船隻上的船員或其他船員。
Cultural heritage (文化遺產)

Legacy of both tangible and intangible heritage of a community that is inherited from past generations, maintained in the present and passed on to future generations.

一個社區所傳承的物質文化遺產與非物質文化遺產。

Deep water fishing (深水垂釣)

Recreational fishing in the ocean or deep sea areas. See also Blue water fishing.

在海裏開展的遊樂性垂釣活動。另見深水垂釣。

Demersal trawl ban (海底拖網捕魚禁令)

Prohibition of fishing with a trawl net along the bottom of the sea, lakes or rivers.

禁止在海底、湖底或河底拖網捕魚的法令。

Ecotourism (生態旅遊)

Travel to and tourist activities in natural areas or environments. See also Nature-based tourism.

在自然環境裏開展的旅遊活動。另見自然旅遊。

Fingerling (魚苗)

Young fish larger than fry.

比小魚種略大的魚苗。

Fish culture zones (魚類養殖區)

Designated areas for mariculture and fishing activities.

特別指定用以開展海水養殖與垂釣活動的水域。
Fisher (漁民)

A gender neutral term referring to both fishermen and fisherwomen.

中性詞，泛指“漁民”。

Fisherfolk’s culture (漁民文化)

Fishers’ way of life.

漁民的生活方式。

Fishing moratorium (休漁期)

Temporary prohibition of fishing in designated areas and/or time periods for the protection of fisheries.

為保護漁業，在特定時期或特定水域實施的臨時性捕魚禁令。

Fishing tourism (漁業旅遊)

Tourist activities related to or associated with fishing as a way of life.

與漁業或漁民文化相關的旅遊活動。

Fry (小魚種)

Tiny baby fish smaller than fingerling.

比魚苗還細小的魚種。

Gillnetting (刺網捕魚)

A fishing method used by commercial fishermen in the ocean or sea, typically with a vertical net resting on the sea floor.

商業漁民在海底進行捕撈作業之方法。

Hong Kong National Geopark (香港國家地質公園)

Opened in November 2009 and covering a land area of 50 km², Hong Kong National Geopark consists of Sai Kung Volcanic Rock Region and Northeast New Territories.
Sedimentary Rock Region, and is designated for the purposes of conservation, education and sustained development.

香港國家地質公園於2009年11月開放，占地50平方公里，由西貢火山岩園區和新界東北沉積岩園區兩部分構成，旨在實現保育、教育以及可持續發展之目標。

Kaito (街渡)
Small motorized ferries or tour boats operating on a rental basis in Hong Kong waters. See also Water taxi.

Lamma Fisherfolk’s Village (南丫島漁民文化村)
Built attraction located in Sok Kwu Wan of Lamma Island to showcase local fisherfolks’ heritage and the history of fishery in Hong Kong.

Leisure fishing (休閒垂釣)
Fishing-oriented leisure activities of predominantly local residents. See also Recreational fishing.

Local Certificate of Competency (本地合格證明書)
A certificate of competency issued under Merchant Shipping (Local Vessels) Ordinance to coxswains, engine operators or pleasure vessel operators for the purpose of examination.

Mariculture (海水養殖業)
A branch of aquaculture specializing in the cultivation of marine organisms in salt water.
Marine Fish Culture Ordinance (海魚養殖條例)
Regulations to protect marine fish culture which require all marine fish culture activities to operate under license in designated fish culture zones.

保護海魚養殖之條例。該條例規定所有海魚養殖活動均須領有牌照，並在指定的魚類養殖區內進行。

Marine Park (海岸公園)
A conservation area set aside to preserve marine habitats or ecosystems and protected for recreational use.

為保育海洋生態系統，供遊憩用途之保護區。

Nature-based tourism (自然旅遊)
Travel to and tourist activities in natural areas. See also Ecotourism.

在自然環境裏开展的旅遊活動。另見生態旅遊。

Pak She Kaifong Association (北社街坊會)
A well-established community organization of Cheung Chau residents, which is actively involved in community affairs, particularly in the Bun Festival Parade.

長洲島上久負盛名的居民組織，該組織積極參與島上事務，尤其是太平清醮巡遊事務。

Passenger (乘客)
Any person carried in a vessel other than crew members and children under one year of age.

船員以及年齡不到 1 歲的小童除外，船隻所運載的所有其他人員。

Recreation (遊憩)
Leisure activities of, and facilities or services provided to local residents and tourists.

當地居民及遊客的休閒活動，或為當地居民及遊客提供的休閒設施與服務。
Recreational fishing (消閒垂釣)
Fishing-oriented leisure activities of predominantly local residents. See also Leisure fishing.
主要由當地居民開展的休閒垂釣活動。另見休閒垂釣。

Recreationist (從事休閒遊憩活動的當地/本地居民或遊客)
Local residents or tourists engaging in leisure and recreation activities.
從事休閒遊憩活動的當地/本地居民或遊客。

Rock fishing (岸邊垂釣)
Fishing with a rod and hook off the shore or on a rock.
用魚杆和魚鉤，在岸邊或岩石上開展的垂釣活動。

Sai Kung Geo-Heritage Information Centre (西貢地質遺產資訊中心)
A visitor centre situated in Sai Kung bus terminal and set up to promote awareness of Hong Kong National Geopark and local tourism.
位於西貢公交汽車站旁邊，旨在推廣香港國家地質公園以及當地旅遊產品之遊客資訊中心。

Tin Hau Festival (天后寶誕會)
A cultural festival popular amongst Hong Kong fishing villages, featuring the goddess of the sea who is said to protect fishermen.
香港漁村盛行的文化節慶，紀念保佑出海漁民的天后女神。

Tourism (旅遊)
Activities of, and/or businesses catering to, non-local/out-of-town visitors in a destination.
非當地居民在旅遊目的地開展的遊憩活動，或爲之提供產品/服務的商業。

- 94 -
Tourist (遊客)

Non-local/out-of-town visitors to a destination.

到某個旅遊目的地參觀遊覽的、非當地居住（外地）的訪客。

Trawler (拖網漁船)

Fishing boats used for trawling.

拖網漁船。

Trawler buyout scheme (拖網漁船自願回購計劃)

A legislation and management strategy to restore seabed and protect marine resources through banning trawling in Hong Kong waters and granting an ex-gratia allowance to eligible fishermen who are voluntary to participate in the trawler buyout.

一項旨在復原海牀、保護海洋資源的法令與管理措施。其內容包括禁止在香港水域拖網捕魚，以及由政府向自願參加拖網漁船回購計劃且符合資格的漁民發放特惠津貼。

Water-based recreation (水上遊憩)

Activities of and/or facilities centering around water or the sea for local residents and tourists.

當地居民及遊客參加的水上休閒活動，和/或為當地居民及遊客提供的水上休閒設施與服務。

Water-based tourism (水上旅遊)

Activities and/or attractions centering around water or the sea for non-local/out-of-town visitors.

由非當地居民（外地訪客）參加的水上游憩活動，和/或為他們開展水上游憩活動而設置的景點/吸引物。

Water taxi (出租小汽艇)

Small motorized speed boats operating on a rental basis. See also Kaito.

行駛於香港水域、供乘客租用的汽艇或遊船。另見街渡。
Appendix B: Information Note on Fishing Moratorium in the South China Sea

INTRODUCTION

This paper informs Members of the measures taken by the Government to help Hong Kong fishermen to cope with the fishing moratorium in the South China Sea in 2000.

MEASURES

2. The measures are summarised as follows:-

(a) The fishermen who were affected by the fishing moratorium and received low interest-loans last year will be allowed on an one-off basis to extend the loan repayment period for up to six months at 3% annual interest rate if they have genuine financial hardship;

(b) The fishermen operating cage trappers affected by the fishing moratorium for the first time this year will be provided with special arrangements, including low-interest loans under the Fish Marketing Organization Loan Fund (FMOLF) subject to the same terms as the loans offered last year. Moreover, if they suffer financial hardship due to the fishing moratorium, they may apply for Comprehensive Social Security Allowance (CSSA) to cover their basic and essential needs. As an exceptional arrangement, the value of the fishing vessels will be disregarded for the purpose of the asset test during the period of the fishing moratorium if the fishermen meet the other eligibility criteria of the CSSA Scheme;

(c) The ad hoc Working Group to deal with matters arising from the fishing moratorium has been turned into a standing Working Group to enable more regular and focussed discussions on issues related to the fishing moratorium;

(d) As in last year, special berthing arrangements will be made at typhoon shelters to ensure safety, and vocational training will be provided for fishermen during the fishing moratorium; and

(e) AFCD will continue to maintain close liaison with the Mainland authorities on issues related to the fishing moratorium.
BACKGROUND

3. The Bureau of Fisheries Management and Fishing Port Superintendence of the Ministry of Agriculture in the Mainland (the Bureau) first implemented a fishing moratorium in the South China Sea in June and July 1999. Under the moratorium, all fishing operations using trawl net, purse-seine and hand trawl were banned in order to conserve fisheries resources and promote sustainable development of the fishing industry. Some 1,350 Hong Kong fishing vessels were affected. Since these vessels were not allowed to operate in the traditional fishing grounds in the South China Sea, they had to be berthed in typhoon shelters during the two-month period. In leaving their vessels idle during the moratorium, fishermen incurred additional costs for repair works (e.g. anti-fouling, and cleaning and inspection of propellers and engines) required for the vessels to resume operation after the fishing moratorium.

4. An ad-hoc Working Group comprising representatives of Government and fishermen was set up by the then Agriculture and Fisheries Department (now renamed as the Agriculture, Fisheries and Conservation Department, AFCD) to deal with matters arising from the fishing moratorium. Since announcement of the implementation of the fishing moratorium was made only in March 1999 and the moratorium was the first of its kind in the South China Sea, Government accepted the Working Group's recommendation that financial assistance should be provided since fishermen were unable to prepare themselves adequately for the moratorium. We sought Finance Committee's approval in June 1999 to inject $65 million into FMOLF, so that special loans ranging from $30,000 to $50,000 at 3% annual interest rate could be made to the fishermen affected to cover the additional maintenance costs incurred in the first year. Last year, 975 loans amounting to $46.6 million were issued.

5. In view of the special circumstances, the Social Welfare Department (SWD) also agreed to disregard the value of a fishing vessel for the purpose of asset test under the CSSA Scheme, on condition that the fishermen affected met other eligibility criteria for CSSA. About 900 applications for CSSA were approved. This assistance was restricted to the period of the fishing moratorium only.

REVIEW OF THE 1999 FISHING MORATORIUM AND RELATED ARRANGEMENTS

6. According to the Bureau's assessment, there was a considerable increase in fish catches from the South China Sea in the two months immediately following the fishing moratorium as compared with the same period in 1998. Although fish price had lowered, the overall performance of the Mainland's fishing vessels still recorded an improvement. The Bureau considered that the fishing moratorium was effective in protecting fisheries resources and improving production.

7. In August 1999, the ad-hoc Working Group reviewed the special
arrangements made in response to the fishing moratorium last year, which included special berthing arrangements at typhoon shelters and related fire prevention and crime prevention matters, the provision of vocational training courses for fishermen, the handling of Mainland deckhands staying in Hong Kong, loan assistance and CSSA grants, etc. The Working Group was generally content with the special arrangements made.

THE COMING FISHING MORATORIUM

8. Details of this year's fishing moratorium have just been announced by the Bureau today. The area affected and the duration of this year's fishing moratorium will remain the same as that of last year. But its period will be slightly deferred by 12 hours, i.e. “starting from 12:00 noon, 1 June 2000, and ending at 12:00 noon, 1 August 2000”. The ban on fishing operations will be extended to cover cage trapping, such that only gill-netting, long-lining and hand-lining will be allowed. AFCD estimates that about 50 cage trappers may be affected in addition to the original 1,350 fishing vessels affected last year.

ARRANGEMENTS FOR CAGE TRAPPING FISHERMEN

9. Due to the relatively short notice and limited time for preparation, fishermen operating the 50 cage trappers might face similar problems encountered by those of the 1,350 fishing vessels last year. We will therefore extend special loans to them through FMOLF on the same terms as the loans offered last year. FMOLF is a revolving loan fund with capital allocated from FMO to provide loans to fishermen for repair, replacement or provision of fishing vessels, gear and equipment and other production purpose. AFCD expects that FMOLF would have a balance of about $6 million by June 2000, which should be sufficient for making special loans to the 50 cage trappers. In addition, SWD will apply last year's special arrangement to the fishermen operating cage trappers, i.e. the value of their fishing vessels to be disregarded for the purpose of the asset test under the CSSA scheme during the period of the fishing moratorium.

REQUEST OF OTHER FISHERMEN FOR LOW INTEREST LOANS

10. Some fishermen have suggested that low-interest loans should be provided to all fishermen affected by the fishing moratorium this year as in last year. We consider that since the fishing moratorium is an annual exercise, the fishermen who were affected last year should be able to take into account its implications in planning their operation every year. AFCD has reminded fishermen time and again that they should make early preparations for the fishing moratorium this year and that no special loans would be made available. The provision of low-interest loans last year was a special case, in view of the limited time available for fishermen to make necessary preparations.
11. Furthermore, applications for loans from FMOLF for repairs and maintenance subject to normal eligibility criteria and procedures and availability of fund will continue to be available to all fishermen.

REPAYMENT OF LOANS

12. The majority of the special loans issued last year will fall due in around July this year, i.e. during the period of the fishing moratorium. Some fishermen have suggested that Government should allow them to defer loan repayment. In order not to increase their burden during the fishing moratorium, we will grant a one-off extension of loan repayment for up to six months at 3% annual interest rate on a case by case basis if the fishermen concerned have genuine financial hardship. The maximum amount of interest forgone is estimated to be $760,000 on a "no-gain-no-loss" basis. Any outstanding loan amount plus interest not yet repaid after the approved extension period will be subject to the prime rate. Of the 975 loans issued, 53 loans have been repaid in full and 213 loans are being repaid by quarterly instalments. The remaining 709 loans are to be repaid in lump-sum in July 2000, i.e. one year after drawdown.

OTHER MEASURES

13. The following measures to assist fishermen will also continue:

Establishment of a standing Working Group

14. The ad hoc Working Group referred to in paragraph 4 above has effectively provided a forum for discussions between fishermen and Government on issues related to the fishing moratorium. AFCD has now turned it into a standing Working Group on Fishing Moratorium and enhanced its representation to include more members from the fishing industry, environmental conservation groups and academics. AFCD will make use of this forum as well as regular liaison meetings at major fishing ports to apprise fishermen of the need to plan ahead for the annual fishing moratorium.

Berthing Arrangements at Typhoon Shelters

15. Marine Department, Hong Kong Police Force and Fire Services Department would continue to ensure safety and order in typhoon shelters through implementing special berthing arrangements, strengthening patrols and enhancing publicity to alert fishermen on prevention of fire and crime.

Vocational Training for Fishermen

16. AFCD would continue to provide vocational training classes for
fishermen during the fishing moratorium. Fishermen would then be able to use the free time for upgrading the qualifications and skills for operating vessels. In addition, AFCD would jointly organise with the Mainland authorities seminars on fishing moratorium and fisheries management to educate fishermen on the conservation of fisheries resources.

Close Liaison with the Mainland Authorities

17. AFCD has established direct communication channels with the Bureau on issues related to the fishing moratorium. AFCD will continue to liaise with the Mainland authority to see whether the details of the future fishing moratorium can be made as early as possible to enable Hong Kong fishermen to have more time to make the necessary preparations.

CONSULTATION

18. AFCD will go through the details on the measures referred to in this paper with fishermen representatives at the Working Group on Fishing Moratorium.

Environment and Food Bureau / Agriculture, Fisheries and Conservation Department
31 March 2000
Appendix C: Artificial Reef Deployment in Outer Long Harbour and East Tap Mun

ARTIFICIAL REEF DEPLOYMENT IN OUTER LONG HARBOUR AND EAST TAP MUN

Project Profile

February 2000
Agriculture, Fisheries and Conservation Department

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8. Literature Cited
1. Introduction

At the meeting on 8 December 1995, the Finance Committee approved the implementation of an artificial reef (AR) project to promote bio-diversity of the marine environment in the waters of Hong Kong and rehabilitate and enhance fisheries resources. Funding of HK$100 million for the AR project was approved (ref. FCR(95-96)87). The project is being implemented in two phases. The first phase involves the deployment of ARs in existing marine parks. The second phase will involve the deployment of ARs outside existing marine parks.

In Phase 1, redundant vessels, tyres, quarry rock and concrete modules are deployed as ARs in Hoi Ha Wan and Yan Chau Tong Marine Parks. Twenty boats, 216 tyre modules, 131 concrete modules and eight quarry rock ARs have been deployed. Phase 1 was completed in September 1999. The initial results are very encouraging. Juveniles of many high-value reef fish, including breams, snappers and grunts have already begun to establish impressive populations around the ARs. In addition, sizeable groupers and snapper adults have also taken up residence on several ARs. Over 110 fish species have so far been recorded on the deployed ARs.

To implement Phase 2 of the AR programme, the Artificial Reef Deployment Study was commissioned to identify suitable sites for deployment outside marine parks and to recommend AR site management plans. Five AR deployment sites were recommended at the West Sokos/Shik Kwu Chau, East Po Toi, Ninepin, Outer Port Shelter, and East Tap Mun. An extensive consultation on the recommendations of the Artificial Reef Deployment Study was conducted between July and September 1999. In response to comments received during the consultation Agriculture, Fisheries and Conservation Department is proceeding with AR deployment proposals in Outer Port Shelter and East Tap Mun and will withhold the proposals for West Sokos/Shik Kwu Chau, East Po Toi and Ninepin.

This Project Profile describes the AR deployment proposal for the Outer Long Harbour and East Tap Mun.
2. Basic Information

2.1 Project Title

Artificial Reef Deployment in Outer Long Harbour and East Tap Mun.

2.2 Purpose and Nature of the Project

The project proposes to construct and deploy artificial reefs with the following main objectives:

1. To create habitats for hard bottom assemblages and provide protection for adult and juvenile fish resources.
2. To enhance the marine resources of the site and contribute to a Hong Kong wide enhancement of marine resources.

2.3 Name of the Project Proponent

Artificial Reefs Division, Agriculture, Fisheries and Conservation Department, Government of the Hong Kong Special Administrative Region.

2.4 Location and Scale of Project

The proposed area in which the artificial reefs (ARs) will be deployed is located at Outer Long Harbour and East Tap Mun. Excluding the fish culture zones, the artificial reef deployment area is approximately 1,558.0ha in size. The location of the proposed AR deployment area is shown in Figure 2.4a.

The proposed deployment area will be comprised of nine AR complexes. Locations of these complexes are detailed in Figure 2.4b. Each square-shaped complex, measuring 400m x 400m, will contain five AR groups, four located at the corners and one at the centre. Each corner group will be formed from prefabricated AR units that collectively occupy an area of 250m$^2$ on the seabed. The centre group will be made from a single quarry rock pile with basal diameter of 30m. Total footprint area of the ARs to be deployed under this project is approximately 15,400m$^2$.

2.5 Number and Type of Designated Projects

The proposed project will involve works of more than 1ha in size and the boundaries of some proposed AR complexes are less than 500m from boundaries of existing fish culture zones and country parks and is thus classified as a Designated Project under Schedule 2 Part I C.2(a) (v) and (ix) of the Environmental Impact Assessment Ordinance.

2.6 Names and Telephone Numbers of Contact Persons

Senior Fisheries Officer, AFCD
2.7 Sources of Funding and Support

The project is funded solely by the Agriculture, Fisheries and Conservation Department, Government of the Hong Kong Special Administrative Region.
3. Planning and Implementation Programme

3.1 Planning and Implementation

The whole project is planned and implemented by Agriculture, Fisheries and Conservation Department. Acquisition of construction material, fabrication and deployment of AR will be carried out by a contractor to be appointed by AFCD.

3.2 Project Implementation

The project is scheduled for gazetted under Section 5 of the Foreshore and Seabed (Reclamations) Ordinance in April 2000, authorization under Section 8 of the Ordinance is expected in December 2000. Contract for the works will commence in April 2001 and complete in 18 to 24 months time. The project implementation schedule is given in Table 3.2.

3.3 Design of the Prefabricated Artificial Reef Units

Final design of the prefabricated artificial reef units to be located at the corners of the AR complexes is not yet fixed but will have the following functional requirements:

1. The artificial reef unit shall be optimally designed to enhance marine resources present in the deployment area. AR deployed will provide an appropriate combination of large void space, high surface area to volume ratio and high numbers of refuges;
2. The prefabricated artificial reef unit shall be united with no loose parts;
3. The artificial reef unit, or part of it, shall be as high as possible while satisfying the minimum depth clearance specified for its particular deployment location;
4. The artificial reef unit shall be massive; sufficient to withstand storms, current surges or trawl net towed by 1,000Kw trawlers without lateral displacement;
5. The artificial reef unit shall be made of materials that are non-polluting and durable, and constructed to ensure they remain intact for at least 20 years submerged in a marine environment;
6. The artificial reef unit shall be designed for minimal bearing pressure on the seabed to minimize sinking in soft mud; and
7. The surface of the artificial reef unit shall have a rough texture to enhance marine growth.
<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
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<th>2001</th>
<th>2002</th>
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</table>

Table 3.1: Project Implementation Schedule

- AR deployment:
- Gazette preparation under FSO
- Public consultation
- Application for an Environmental Permit
- Tender procedures
- Contract commercial & deployment of AR

- Authorization of AR deployment under FSO
- Authorization of AR deployment contract preparation
- Tender procedures
- Contract commercial & deployment of AR
3.4 Quarry Rock Artificial Reef

Natural quarry rocks will be used in the formation of the central artificial reefs (in each AR complex). 90% of the rock used will be over 70kg (i.e., equivalent to approximately 30 cm x 30 cm x 30 cm in size) with maximum size not exceeding 325kg. No small rocks or "end-of-the-load" materials will be used in the building of the sea-mounts.

3.5 Artificial Reef Deployment

The AR units will be fabricated offsite and transported to the deployment sites by barges. A derrick will be used to lower the AR units onto the seabed in a control manner and then released. Quarry rocks will be acquired offsite and deployed using a mechanical grab. The grab load will be released on or close to (1m) the sea bottom. Differential Global Positioning System (DGPS) will be used to ensure accurate deployment of the ARs to within 5m from positions specified in the contract.

All ARs will be deployed at least 200m away from the shoreline (high water mark) and will be deployed in a depth ranging from 10 to 21m below chart datum (Table 3.5). Minimum water clearance, from top of deployed reef to sea surface, will be at least 9m C.D. except in close inshore areas (TM8) where a clearance of at least 5m C.D. will be maintained.

Table 3.5 Water depths at the proposed deployment locations and maximum height of AR to be deployed

<table>
<thead>
<tr>
<th>AR Complex*</th>
<th>Depth range before AR deployment (m)</th>
<th>Maximum height of AR to be deployed (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM1</td>
<td>14-15</td>
<td>5-6</td>
</tr>
<tr>
<td>TM2</td>
<td>13-15</td>
<td>4-6</td>
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<td>TM3</td>
<td>15-16</td>
<td>6-7</td>
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<td>TM6</td>
<td>17-20</td>
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<td>TM7</td>
<td>20-21</td>
<td>11-12</td>
</tr>
<tr>
<td>TM8</td>
<td>9-16</td>
<td>4-11</td>
</tr>
<tr>
<td>TM9</td>
<td>14-16</td>
<td>5-7</td>
</tr>
</tbody>
</table>

Note: * Please refer to Figure 2.4 for location of the AR complex

3.6 Work Site

No work site will be provided for the storage of raw materials and fabrication of the ARs under this project. The appointed contractor will have to have its own work site and if located in Hong Kong will be subjected to the requirements of the ordinances and regulations of the Hong Kong SAR.
4. Surrounding Environment and Baseline Information

4.1 Geophysical Environment

Information supplied by the Fill Management Committee of CED details the physical nature of the sediments in the proposed deployment area. From a series of boreholes taken during 1989 information was obtained on the sediment texture and particle size distribution. The records provided by CED detailed the top 30m of sediment. The table below presents the top 6m of sediment as depths greater than this are unlikely to have any impact on the stability of the ARs (Table 4.1). The information indicates that unlike many areas in Hong Kong much of the sediments at East Tap Mun contain a high sand content.

There are a wide variety of physical characteristics of the proposed deployment area ranging from rocky wall and large boulder habitat surrounding the islands to the mud flats in the channels between (BCL 1996).

<table>
<thead>
<tr>
<th>Drillhole No.</th>
<th>Sediment Texture at 0-2m</th>
<th>Sediment Texture at 2-4m</th>
<th>Sediment Texture at 4-6m</th>
</tr>
</thead>
<tbody>
<tr>
<td>VD1/2</td>
<td>Very soft, brownish grey, silty clay with shell fragments</td>
<td>Greyish yellow brown, fine sand with shell fragments flakes</td>
<td>Medium dense, dark yellowish brown fine sand with mica</td>
</tr>
<tr>
<td>SMMD1/10</td>
<td>Very soft greenish grey slightly sandy silty clay with some shell fragments</td>
<td>Very soft greenish grey sandy silt/clay to very dense silty/clayey fine fragments</td>
<td>Very dense greenish grey silty/clayey fine to medium sand with some shell</td>
</tr>
<tr>
<td>SMMD1/16</td>
<td>Very soft, greenish grey, slightly sandy to sandy silty clay with some shell fragments</td>
<td>Very soft, greenish grey, slightly sandy to sandy silty clay with some shell fragments</td>
<td>Very soft, greenish grey, sandy silty clay to sandy silt/clay with some shell fragments</td>
</tr>
</tbody>
</table>

4.2 Wave Action

The area east of Tap Mun is fairly exposed and is susceptible to high wave action and fast currents. The location of the proposed deployment area in east Tap Mun is, therefore, open to the effects of the seasonal northeast monsoon and occasional typhoons (Table 4.2).

There are no constrained areas with respect to AR deployment within the area boundary as seabed currents are not excessive and there are no scour holes.
Table 4.2 Wave Climate of east Tap Mun at Shek Ngau Chau

<table>
<thead>
<tr>
<th>Direction (Degree)</th>
<th>F (m)</th>
<th>d (m)</th>
<th>US (ms⁻¹)</th>
<th>UA (ms⁻¹)</th>
<th>H (m)</th>
<th>T (s)</th>
<th>L (m)</th>
<th>Sea Bed Velocity max (ms⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>1.500</td>
<td>15</td>
<td>30</td>
<td>47</td>
<td>0.9</td>
<td>2.5</td>
<td>10</td>
<td>0.000</td>
</tr>
<tr>
<td>NE</td>
<td>2.500</td>
<td>17</td>
<td>35</td>
<td>56</td>
<td>1.4</td>
<td>3.2</td>
<td>16</td>
<td>0.003</td>
</tr>
<tr>
<td>E</td>
<td>2.000</td>
<td>16</td>
<td>41</td>
<td>68</td>
<td>1.5</td>
<td>3.1</td>
<td>15</td>
<td>0.004</td>
</tr>
<tr>
<td>SE</td>
<td>3.000</td>
<td>18</td>
<td>41</td>
<td>68</td>
<td>1.9</td>
<td>3.6</td>
<td>20</td>
<td>0.011</td>
</tr>
<tr>
<td>S</td>
<td>450,000</td>
<td>20</td>
<td>35</td>
<td>56</td>
<td>6.0</td>
<td>11.1</td>
<td>146</td>
<td>1.744</td>
</tr>
<tr>
<td>SW</td>
<td>9,000</td>
<td>15</td>
<td>35</td>
<td>56</td>
<td>2.5</td>
<td>4.7</td>
<td>34</td>
<td>0.127</td>
</tr>
<tr>
<td>W</td>
<td>10,000</td>
<td>18</td>
<td>31</td>
<td>48</td>
<td>2.3</td>
<td>4.6</td>
<td>33</td>
<td>0.104</td>
</tr>
<tr>
<td>NW</td>
<td>1,300</td>
<td>17</td>
<td>21</td>
<td>30</td>
<td>0.5</td>
<td>2.1</td>
<td>7</td>
<td>0.000</td>
</tr>
</tbody>
</table>


4.3 Water Quality

Two EPD water quality sampling stations, MM6 and MM17, are located close to the proposed deployment area. Results from EPD’s monitoring programme over the period from 1988 to 1998 (EPD 1989-1999) have shown the following:

1. Sea bottom temperature for the area had an average annual value of 21.4°C and a range of 11.0 - 28.2°C. The surface temperature had an average annual value of 23.3°C and a range of 11.5 - 31.2°C.

2. Salinity at the sea bottom had an average annual value of 32.9 ppt and a range of 28.5 - 34.6 ppt. Salinity at the surface had an average annual value of 30.9 ppt and a range of 20.2 - 34.4 ppt.

3. Dissolved oxygen at the sea bottom had an average annual value of 81.8% saturation and a range of 2.5 - 198.0% saturation. The surface had an average annual value of 101.4% saturation and a range of 67.2 - 166.0% saturation.

4. Suspended solids had an average annual sample value of 2.6 mg.l⁻¹ and a range of 0.5 - 24.3 mg.l⁻¹.

4.4 Hard Surface Assemblages

Dive surveys by Binnie Consultants Ltd, as part of the Coastal Ecology Studies for the Civil Engineering Department, were carried out to characterise the condition of coral communities around Hong Kong waters. The nearest survey locations to the proposed deployment area were at Shek Ngau Chau (BCL 1996).

The coral habitats around Shek Ngau Chau, east of Tap Mun, was found to be in slightly poorer condition than other parts of Mirs Bay with hard corals dominated but with less abundance and diversity (BCL 1996). Findings from these surveys also show that there is evidence of adult corals and coral breeding in the proposed deployment area, which has significant implications for the success of the artificial habitat. Any ARs deployed at the area will be sited at a minimum of 200m from the shoreline and away from existing coral reef assemblages and will in no way impact them.
4.5 Benthic Assemblages

A comprehensive study of the benthic communities in and around the waters of Tap Mun was undertaken as part of the Benthic Study of Hong Kong waters by Shin and Thompson (1982). This study concluded that the benthic assemblages of the eastern waters, an area inclusive of the proposed deployment area, supported communities that were polychaete dominated (73%), with the most dominant species being Aglaophamus lyrochaetis. Crustaceans were next in order of abundance (10%), followed by other groups (7%), echinoderms (6%) and molluscs (5%). Species diversity was the highest in Hong Kong with a mean number of species of 19m⁻². The mean number of individuals was 88.2m⁻² which is lower than the average for Hong Kong (101m⁻²) and mean biomass for the area was 23g.m⁻², which is low compared to the overall mean biomass for Hong Kong at 35g.m⁻².

4.6 Fisheries Resources

Trawls conducted in the northeastern waters of Hong Kong (station T5 - Mirs Bay) recorded average catches comparable to other areas in Hong Kong that were sampled. The catches were composed primarily of the low value rabbitfish Siganus oramin (<55kg⁻¹). The highest catch weight was recorded during October (ERM 1998) (Table 4.6).

<table>
<thead>
<tr>
<th>Species</th>
<th>% of Catch</th>
<th>Mean Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siganus oramin</td>
<td>43.2</td>
<td>7.00</td>
</tr>
<tr>
<td>Portunus sanguinolentus</td>
<td>7.2</td>
<td>57.7</td>
</tr>
<tr>
<td>Orectias haitiana</td>
<td>4.9</td>
<td>12.0</td>
</tr>
<tr>
<td>Orectias nepa</td>
<td>4.5</td>
<td>15.4</td>
</tr>
<tr>
<td>Metapenaeopsis palmerstoni</td>
<td>4.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Lopexus ciurus</td>
<td>3.6</td>
<td>34.1</td>
</tr>
<tr>
<td>Sepia sp</td>
<td>2.2</td>
<td>60.0</td>
</tr>
<tr>
<td>Polydactylus sexatoris</td>
<td>2.0</td>
<td>11.3</td>
</tr>
<tr>
<td>Leionatus brevirostris</td>
<td>1.9</td>
<td>10.2</td>
</tr>
<tr>
<td>Caranx kessla</td>
<td>1.9</td>
<td>3.5</td>
</tr>
</tbody>
</table>

4.7 Fishing Operations

There are several home ports close to the AR deployment area, the closest being the small-scale ports in Tap Mun, Kau Lau Wan and Sham Wan. From helicopter surveys conducted between June 1996 to May 1997 it has been observed that the most common types of vessels fishing in between Tap Mun and Shek Nga Chau area include pair and stern trawlers which exploit demersal resources plus heavy concentrations of P4/7 vessels.

The operations responsible for the majority of the catch are pair trawlers and P4 operators. Catch weights reported by the fishermen during the interviews rank very low in comparison with the rest of Hong Kong. Out of the 179 areas in Hong Kong waters where fishermen reported catches only Tap Mun reported high catches (16th out of 179). The other areas near to the deployment area all ranked quite low in terms of adult catch weight, Ocean Point ranked 57th, Kau Lau Wan ranked 132nd, Nam She Wan ranked 167th and Bate & Fung Head 172nd. These areas also reported very low catches of fl"
5. **Potential Impacts on the Environment**

5.1 **Potential Benefits in Deploying Artificial Reefs**

The potential benefits of AR deployment in Outer Long Harbour and East Tap Mun include the following:

1. To create habitats for hard bottom assemblages and provide protection for adult and juvenile fish resources.

2. The enhancement of marine resources in the area and a contribution to the enhancement of Hong Kong’s marine resources.

5.2 **Impact on Water Circulation**

The low-density of ARs precludes any impact on the overall wave climate, tidal current and sediment regimes. The volume of reefs placed in each group will make no discernible difference to the flow of water through the area. Locally the ARs may encroach on the flow and cause waves to break further offshore than normal. This will only affect the immediate area of the AR.

5.3 **Impact on Water Quality**

The placement of ARs, using the methods described in Section 3.5, is unlikely to cause any significant impact on water quality during deployment. Disturbance of seabed, causing a slight increase in turbidity and suspended solids, will occur during placement of ARs. This, however, will be very localized and restricted to the immediate vicinity of the ARs and very transient in duration. The overall water quality impact is therefore insignificant.

Materials selected for the building of ARs will not leak any harmful substance into the environment causing adverse impact. If boats are used they will be prepared to remove as far as possible any objectionable matters on board, such as oil and grease, following the guidelines described in Section 6.2. Impact of any residual oil and grease on water quality will be transient.

If concrete is to be used in the construction of the AR units it may be desirable to incorporate coal ash into the concrete mixture in order to increase strength of the concrete, and to reduce the AR units' bearing pressure on the seabed. Results from Japan (Suzuki 1983), Taiwan (Kuo et al. 1995), USA (Roether and Oakley 1985), UK (Collins and Jensen 1995), Italy (Relini et al. 1994), and a case study in Hong Kong (Leung et al. 1997) have shown that trace metal leaching from coal ash/cement blocks is of little environmental concern because of the formation of a surface salt barrier. Assuming the ratio of PFA in the mixture is similar to that in the reported trials, it is unlikely that any metal released will cause any impact to the water quality or damage to the flora and fauna of the Outer Long Harbour and East Tap Mun site.

5.4 **Impact on Noise Quality**

Human settlements at Tap Mun and Kau Lo Wan are over 700m from the closest AR deployment sites at TM1 and TM2, respectively (Figure 2.4b). Works at the sites will not involve construction or percussive piling. The only noise generated will be those from a single mechanical derrick or grab used by the barge during deployment of the ARs. Noise
levels during working hours (from 0900hr to 1700hr on any day not being a general holiday) will not exceed the guidelines contained in the Technical Memorandum on "Environment Impact Assessment Process". Impact on noise quality is expected to be minimal during deployment of the ARs.

5.5 Visual Impact

No above-water structures will be erected during and after the deployment of ARs. At any given time during deployment, marine plants in the area will include one barge, one tug boat and up to two small shuttle crafts. The contractor is required to conduct deployment and related works during hours between 0900hr and 1700hr on any day not being a general holiday. Deployment will be scheduled to avoid the need to carry out works between 1700hr on Saturday and 0900hr of the following Monday or during public holidays. Unless weather or other conditions cause unavoidable change to this schedule, the contractor would remove his vessels and plants from the deployment area at the weekend and public holidays and, where they might cause hazard to the navigation of other users, leave any uncompleted development adequately marked. Visual impact caused by the AR deployment is therefore kept to minimal.

5.6 Impact on Utilities

There is an existing underwater raw water pipeline in Long Harbour running from south of Tap Mun, through Kau Lau Wan Tsui, Wong Mau Kok Tsui, Tung Sam Kei Tsui to Tai Tan (Figure 2.4b). Another pipeline is planned and will be laid alongside the existing one across South Channel. The existing and proposed pipelines are 500m from the closest AR complex (TM2) and are unlikely to be affected by the AR deployment using the methods described in Section 5.5. The AR project, during and after its implementation, will not in any way affect the construction and inspection of the proposed submarine pipeline or the present and future maintenance of the existing and proposed submarine pipelines.

No other utilities are located in the deployment area.

5.7 Impact on Marine Traffic and Navigation

There are no designated major shipping routes through the proposed deployment area. Although container traffic is known to pass to the east and north of the proposed deployment area, the most common vessels using these waters are local fishing vessels or those used solely for recreational purposes. As deployed ARs will have a depth clearance of at least 5m C.D. in close inshore areas (TM8 Figure 2.4b) where there are only small craft traffic and at least 9m C.D. in other areas they are unlikely to affect marine traffic activities in the area. As soon as deployment is completed AR depth information will be supplied to Marine Department for updating the relevant chart to aid navigation through the area.

No restrictions on passage and mooring of vessels will be implemented as a result of AR deployment in the proposed area or the area being designated as a Fisheries Protection Area (formerly known as Marine Special Area or MSA) in the future (also see Section 5.10).
5.8 Impact on Benthic Assemblages

The deployment of an AR could alter a soft bottom assemblage by producing the following alterations in the surrounding substratum:

1. The smothering of a portion of the soft bottom assemblage under the reef base;
2. Modification of the bottom current and, as a consequence, variations in the sediment size-distribution and the sedimentation rate around the reef base;
3. Change of sediment organic content through the metabolic activity of both benthic and nektic reef assemblages; and,
4. An increase in feeding pressure on the part of the infauna due to both attracted and resident reef fish.

The benthic community in the area is not of particularly high ecological value, being typical of Hong Kong in that it is dominated by polychaetes. Although deployment of ARs may cause the above impacts it is most likely that the overall ecological value of the area (in terms of species richness and abundance) will be enhanced through AR deployment.

5.9 Impact on Corals and Existing Hard Bottom Assemblages

Dive surveys conducted by AFCD in December 1999 ensured only those areas void of any corals or hard surface assemblages are chosen for placement of ARs. The survey results indicated that the bottom of the proposed AR sites is void of any corals. ARs are also to be sited at least 200m away from any known corals or hard bottom assemblages. There will be no direct habitat loss of corals or hard bottom assemblages. Indirect impacts due to water quality change during deployment are also not expected since potential impact on water quality is unlikely (see Section 5.3). After deployment, hard bottom assemblages are expected to benefit from the additional habitat provided by the deployed ARs.

5.10 Impact on Fishing Operations

Once ARs have been deployed, the deployment area will become unusable for the few demersal trawlers that use the area. Proposals to manage the remaining two thirds of the AR complexes as "no-take" fisheries and the remaining one third (TM1, TM2 and TM3) as fishable, subjected to gear and season restrictions, are being considered. The operations adopted by vessels from nearby ports are mainly small-scale activities (e.g. purse seine, gill net, and hand line) which are likely to benefit from the resource enhancement brought about by the AR deployment and the exclusion of trawling activity despite the establishment of the "no-take" area.

Amendments to the Fisheries Protection Ordinance (Cap. 171) to empower the Director of Agriculture, Fisheries & Conservation to designate the proposed deployment area as Fisheries Protection Areas and to implement the necessary fisheries management measures are being pursued. It is likely that the amendment process will take two years. AR deployment at the proposed area will also take about two years to be completed. AFCD will seek to manage the AR areas through voluntary agreement with fishers prior to the implementation of the legislative amendments, which will include a fishing permit system.
5.11 Impact on Mariculture Operations

There are two fish culture zones located within the proposed AR deployment area (Figure 2.4b). TM1 is 330m from the northernmost Tap Mun FCZ and TM2 is 550m from the Kau Lin Wan FCZ. Deployment of ARs, using the methods described in Section 3.5, at the proposed locations will not have any impact on the mariculture activities in the area in view of the insignificant water quality impact (see Section 5.3).

5.12 Impact on adjoining Country Parks

The AR deployment area is fringed by the Sai Kung West Country Park on the west and Sai Kung East Country Park on the south (Figure 2.4b). Complexes TM1 and TM2 are within 380m from the Sai Kung West Country Park while TM8 is within 250m from the Sai Kung East Country Park. As the closest ARs to be deployed are some 200m from the boundary of the country parks and submerged in marine environment of over 10m in depth, no adverse impact on the country parks is envisaged during and after deployment of ARs.

5.13 Impact on HoI Ha Wan Marine Park

The HoI Ha Wan Marine Park is situated more than 600m away from the northwestern corner of AR Complex TM1 (Figure 2.4b). Deployment of ARs, using the methods described in Section 3.5, in the proposed locations will not have any adverse impact on the water quality in the marine park during and after implementation of the project (see Section 5.3).

5.14 Impact on Recreational Activities

The Jockey Club Wong Shek Water Sports Centre is located at the southern end of Long Harbour. Recreational activities are mostly confined to Inner Long Harbour and outside the AR deployment area. Following the deployment methods and environmental protection guidelines set out in Section 3.5 and Section 6, respectively, water quality, noise and visual impacts and potential hazards on the water-based recreational activities will be either kept to a minimal or not be expected during and after implementation of the AR project.

No restrictions on passage and mooring of pleasure crafts will be implemented as a result of AR deployment in the proposed area or the area being designated as a Fisheries Protection Area in the future (also see Section 5.10).

5.15 Impact on Potential Sand Borrow Area

There are two sand deposits, totalling 80Mm³ of sand reserves, to the east of the deployment area. The closest proposed artificial reef complex (TM9) is about 2km away from the western sand deposit. The deployment of AR in the proposed deployment area should not pose a problem to the extraction of sand should dredging be authorized. On the other hand, if sand dredging were allowed mean suspended sediment concentration would be about 94 mg/l in the 1-2km radius from the extraction site. This would have an impact on the AR deployed east of Tap Mun unless dredging is carried out at a low production rate and a low impact method of extraction is used. Impact assessment on the deployed ARs should be carried out if the sand reserves are to be activated.
5.16 Other Impacts and Considerations

No impact on air quality or other considerations, such as hazards, waste, landscape and cultural heritage, can be identified in the implementation of this project.
6. Environmental Protection Measures

6.1 Pollution & Litter

The contractor to be appointed by AFCD shall carry out the work in such a manner as to minimize adverse impacts on the environment during execution of the contract. Standard pollution control clauses will be incorporated in the contract. In particular he shall arrange his method of working to minimize the effects on the environment within the works limits, adjacent areas, on the transport routes and at the loading areas.

The contractor shall take all necessary measures to ensure that:

1. Any land-based residue left shall be removed by the contractor within fourteen days whilst any sea borne refuse caused by the works will be immediately collected;

2. All waste materials, goods and substances resulting from the work undertaken by the contractor are disposed of in an environmentally friendly manner and in line with the requirements of the ordinances and regulations of the Hong Kong SAR;

3. No pollution is caused by the contractor for the purposes of carrying out the contract, either to the land or waters of Hong Kong, as defined under the ordinances and regulations of the Hong Kong SAR;

4. No visible foam, oil, grease, scum, litter or other objectionable matter shall be present on the waters within the deployment sites; and

5. Due care is taken during works to avoid unnecessary disturbance of the seabed or the creation of plumes of muddy water.

6.2 Preparation of Boat Prior to Deployment

If boats are used in the construction of the AR units, the contractor shall be required to undertake various preparatory work to them. The work undertaken shall render such boats suitable for deployment as ARs by removing all items which may otherwise cause litter, pollution and potential hazards and by converting such boats into suitable substrate and shelter for marine life. The contractor shall also be required to ensure that any boat deployed as AR shall not provide unnecessary or undue hazards to divers.

In particular the contractor shall be required to remove all items, materials and substances as follows:

1. All unsecured or partially secured items, materials, stores, substances, coverings such as canvas, floor covers and debris;

2. All covers to portholes, windows (including glass), hatches and doors (including projecting hinges) to maximize numbers of openings between hull and exterior;

3. All entrances, windows, portholes and other holes, whether through the bulkheads, floor, hull or roof, of any boat, having minimum dimensions over
50cm but less than 100cm, such that a diver attempting to pass through such holes could become wedged, will be enlarged, where possible, such that the minimum dimension of the hole is increased to at least 100cm;

4. Any oils including lubricating, fuel and hydraulic oils, from all engines and machinery, hydraulic systems, fuel systems, tanks, containers and any other sources where such engines and fuel tanks are to remain on board;

5. All residual oil, by draining and washing down any oil container, including engines and tanks, with suitable degreasing agent, subsequently flushing with water and draining;

6. Wash down all surfaces of engines and all other areas of grease to remove all excess grease;

7. All air conditioners, refrigeration, and cooling equipment;

8. All insulation material including that from the lining of fish holds and cooling pipes, asbestos covers to exhausts and any metal sheeting from the lining of fish holds;

9. All floatation or buoyancy material, e.g. from buoyancy chambers, etc.;

10. All electronic and life saving equipment and items;

11. All other potentially polluting materials and substances;

12. All such parts of masts and/or superstructures, as necessary, of any boat, which may otherwise be likely to project above the required clearance depth of -5m CD or -9m CD, as the case may be, following deployment as AR; and

13. Any clearly hazardous materials, such as broken glass, exposed sharp nails or other sharp metal pieces shall not be left on board any boat prepared for deployment as an AR.

The contractor shall be required to dispose of all items, materials and substances he has removed from the boats, in an environmentally friendly manner and in line with the requirements of ordinances and regulations of the Hong Kong SAR.

6.3 Noise and Visual Impacts

The contractor is only allowed to conduct work related to the deployment of ARs with only one mechanical derrick or grab at any one time. Working hours shall be from 0900hr to 1700hr on any day not being a general holiday. Deployment will be scheduled to avoid the need to carry out works between 1700hr on Saturday and 0900hr of the following Monday or during public holidays. Unless weather or other conditions cause unavoidable change to this schedule the contractor would remove his vessels and plants from the deployment area at the weekend and public holidays and, where they might cause hazard to the navigation of other users, leave any uncompleted development adequately marked.
6.4 **Deployment Duration**

The contractor shall be required to carry out and complete deployment of the artificial reefs in the shortest possible span of time so as to minimize any adverse impacts caused during deployment.
7. **Conclusion**

Based on the review of existing ecological, physical and marine traffic information, adverse impacts to the Outer Long Harbour and East Tap Mun area are not predicted due to the deployment of artificial reefs. The potential benefits from the deployment of artificial reefs far outweigh the potential risks or impacts to the environment, facilities and existing activities.
8. Literature Cited


Proposed Artificial Reef Deployment in Outer Long Harbour and East Tap Mun

EDGED BLACK AREA
1558.0 HA (ABOUT) IN WHICH 15400 SQUARE METRES OF FORESHORE AND SEA-BED WILL BE AFFECTED

<table>
<thead>
<tr>
<th>Point</th>
<th>Hong Kong 1980 Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Northing</td>
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<tr>
<td>A</td>
<td>854554</td>
</tr>
<tr>
<td>B</td>
<td>856058</td>
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<tr>
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<td>857696</td>
</tr>
<tr>
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<tr>
<td>G</td>
<td>858171</td>
</tr>
<tr>
<td>H</td>
<td>854337</td>
</tr>
<tr>
<td>I</td>
<td>852960</td>
</tr>
</tbody>
</table>
Proposed Location of AR Complexes in Outer Long Harbour and East Tap Mun Deployment Area

建議在外大灘海及東塔門水域敷設的人工魚礁位置
Appendix D: Rebuilding Hong Kong Marine Fisheries

EXECUTIVE SUMMARY

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Hong Kong’s fisheries are primarily concentrated in the waters of Hong Kong, the Pearl River Estuary and the adjacent continental shelf in the South and East China Seas. In 2005, there were an estimated 4,150 fishing vessels and 9,200 fishermen in the Hong Kong fishing industry (www.afcd.gov.hk). Fishing fleets landed approximately 29,000 tonnes of fish from Hong Kong waters, contributing HK$752 million in landed value (AFCD Port Survey 2001/02, unpublished data).

Fisheries in Hong Kong have undergone dramatic changes over the past five decades. Just after the Second World War, most Hong Kong fishers fished in Hong Kong and along the coast of south China with sail-driven junks. Catches of predatory fishes such as groupers, snappers and yellow croakers were abundant. Since the 1950s, with financial and technical assistance from the Hong Kong government, fisheries in the country have rapidly become mechanized. As a result, fishing effort increased dramatically and fishing power of bottom trawlers, in particular, increased a lot. Without proper fisheries management and limits on fishing effort, signs of over-exploitation of fisheries resources in Hong Kong waters became evident in the 1970s. Fisheries production was maintained by exploring new fishing grounds, further increases in fishing effort, and exploiting smaller and fast-growing species that could withstand higher fishing pressure. A scientific assessment in the 1990s, commissioned by the Hong Kong government and conducted partly by the Fisheries Centre, University of British Columbia, showed that the majority (18 out of the 17 species studied) of local commercial fish stocks was largely over-exploited. Most of the large food fish that once made up the major catches in Hong Kong waters were almost extirpated commercially. The Hong Kong marine ecosystem became dominated by juvenile fishes, and by species with high turn-over rates, such as small fishes and invertebrates.

In view of the over-exploitation of local fisheries resources, the scientific assessment in the 1990s recommended a number of fisheries management and restoration measures. These included: (i) establishing a fisheries licensing system; (ii) limiting new entrants into the fishery; (iii) establishing protected areas for nursery and spawning grounds (i.e., Fisheries Protection Areas); (iv) enhancing and restoring habitat; and (v) engaging in fish restocking trials. In particular, setting up a licensing system and designating marine protected areas were deemed as high priorities by the UBC research team. So far, recommendations to enhance habitats have been implemented through the deployment of artificial reefs, and small-scale fish restocking trials have been conducted. However, benefits of these measures for restoring local fisheries resources have yet to be empirically demonstrated.

In 2004, to implement the remaining recommendations from the scientific assessment, the Hong Kong government (Agriculture, Fisheries and Conservation Department) proposed the establishment of a fishing license scheme, designation of Fisheries Protection Areas (FPA) in Port Shelter and Tolo Harbour and Channel (including Long Harbour) (Figure 1), and a seasonal fishing moratorium (from June through July). With the aim of facilitating effective management and restoration of local fisheries resources, WWF Hong Kong proposed amendments to the government initiatives. These amendments included additional conditions to the fishing license scheme to ensure proper reporting of catches by fishers, and designation of no-take FPAs instead of the government proposal that offered only partial protection.

The potential for these initiatives to lead to short-term negative socioeconomic consequences for fishers is considered one of the key barriers preventing management action. Therefore, to properly and effectively implement these proposals, an understanding of the following are necessary: 1) the effects of these initiatives on fishing communities and Hong Kong society; and 2) fishers’ willingness and ability to adapt to and accept these changes. This study is especially pertinent because it identifies, for the first time, the key socioeconomic impacts, benefits and costs to fishers and wider communities from implementing the various management options.

In particular, the objectives of this study are to: (1) examine the economic and social consequences of implementing three possible fisheries management scenarios in Hong Kong; (2) evaluate the feasibility of creating alternative livelihoods under those scenarios; and (3) evaluate the economic consequences of successful implementation of the alternative livelihoods. Thus, findings from this study will provide critical information to the government of Hong Kong, non-governmental organizations, the private sector, and other stakeholders for examining the social and economic implications of different management plans for rebuilding Hong Kong’s marine fisheries, and illuminating the way forward.

This study identified the management scenarios to be analyzed. This is crucial because these scenarios form the basis for the analysis of alternative livelihood strategies and the analysis of fisheries impacts presented in this report. The management scenarios we identified are:

**Scenario 1**

**Status quo**
Continuation of the fisheries and marine park management regimes in place in 2005:

- 4 marine parks (Hoi Ha Wan Marine Park, Yan Chau Tong Marine Park, Sha Chau and Lung Kwu Chau Marine Park) where trawling is prohibited and fishing with other methods is allowed with licenses;
- 1 marine reserve (Cape D'Aguilar Marine Reserve) where no fishing is allowed; Chek Lap Kok Marine Exclusion Zone where no fishing is allowed;
- Artificial reefs deployed in the Hoi Ha Wan Marine Park, Yan Chau Tong Marine Park, Sha Chau and Lung Kwu Chau Marine Park, Chek Lap Kok Marine Exclusion Zone, Outer Port Shelter and Long Harbour;
- Fishing effort is not regulated in areas other than the above.

**Scenario 2**

Government initiatives: Introduction of the three amendments to the Fisheries Protection Ordinance proposed by the HK SAR government, with timelines and framework as indicated by the HK SAR government in March 2005. This is in addition to the marine park management regime in place in 2005 (Scenario 1):
Scenario 2a:
Travels are banned from fishing within Fisheries Protection Areas (FPAs) (Port Shelter, Tolo Harbour and Channel, and Long Harbour); all other fishing gears are allowed to fish in the FPAs, except where artificial reefs have been deployed; recreational fishing is not regulated; licensing system is in place and is used to control commercial fishing effort.

Scenario 2b:
In addition to scenario 2a, a seasonal moratorium that is in line with the moratorium in the South China Sea that is imposed by the mainland Chinese authority is implemented, i.e., trawls and purse seines are banned from fishing in Hong Kong waters during June and July.

Scenario 3

WWF Initiatives: Introduction of all or part of WWF’s “Save Our Seas” campaign objectives in 2007 (SOS: “Save Our Seas” Position Paper, 1 Dec 2005)

Scenario 3a:
No-take marine zones to cover all existing marine parks, and the proposed FPAs in Port Shelter, Tolo Harbour and Channel, and Long Harbour.

Scenario 3b:
Ban on bottom trawling in all Hong Kong waters, except in the southern waters (south of Lantau and Lamma Islands) where shrimp trawling is allowed.

Scenario 3c:
Creation of no-take zones covering the entirety of all HK’s marine parks.

Scenario 3d:
Combination of Scenarios 3b and 3c.

Scenario 3d2:
Creation of no-takes FPAs in Port Shelter, Tolo Harbour and Channel, and Long Harbour

Scenario 3e:
Combination of Scenarios 3b and 3d2.

Scenario 3f:
Combination of Scenarios 3a and 3b.

This report attempts to collate opinions from fishers, recreational fishing, diving and marine-related tourism operators, and government officials on these management scenarios. Moreover, using ecosystem models, the potential impacts of each scenario listed above on the different fishing groups and sectors in Hong Kong waters are studied. This report is organized into two main parts: 1) alternative livelihood strategies for fishers and fishing communities, and 2) models for assessing fisheries impacts.

Part 1: Alternative livelihoods for fishers and the fishing community

Effective fisheries management requires an understanding of the socio-economic consequences of management actions. Most experts agree that many fisheries around the world are in crisis, usually because fishing is depleting stocks faster than they can be replaced. Many would agree that actions are needed to stop the depletion. Unfortunately, managing fisheries and rebuilding stocks entails initial costs. In most cases, fishing will have to be reduced significantly in the short term. Subsequently, an important question is: what happens to the fishers while we wait for the fish stocks to rebuild? Our study addresses this question by conducting a survey of Hong Kong's fishers, as it is widely considered that asking fishers is the best way to begin to find feasible solutions to fisheries problems. We interviewed fishers and recreational fishing and diving shop operators, asking questions related to alternative livelihoods, vessel buy-backs, fisheries compensation, no-take marine parks and a trawl ban.
Our survey found that 54% of interviewed fishermen were willing to switch jobs from fishing, with the remaining 46% stating that they would not consider it. This result implies that there is a good potential for well-designed alternative livelihood schemes to succeed. Also, dive and recreational shop operators were generally receptive to hiring fishermen as new employees. The most frequent reason given for not hiring fishermen was that they did not have the required skills. Therefore, any well-designed alternative livelihood schemes will have to address how to develop the necessary skills among fishermen. Our study suggests that the current alternative livelihood options within the marine sector (passenger/leisure boat operator, recreational raft fishing, and deep sea tuna fishing) would not be able to provide a sufficient number of jobs for the fishermen who may potentially be affected by the management initiatives. Therefore, an alternative livelihood scheme would also have to look outside the marine sector.

The survey results indicated that a total of 75% of the interviewed fishermen were willing to participate in a buy-back scheme if they were reasonably compensated for their vessels. These numbers show that a significant number of the fishermen are willing to switch from fishing with the right buy-back package put in place.

There was overall strong support among dive and recreational operators for a total ban on fishing in marine parks, with 86% of all respondents either agreeing or strongly agreeing with this proposal. All marine tourism operators agreed with a total ban on fishing in marine parks. Around half of the alternative livelihood operators thought their businesses would benefit from no-take marine parks. In contrast, among fishermen, only the small-scale fishers using P4/7 boats thought that marine parks did provide some benefits. P4/7 is a license class for small glass fibre-reinforced boats with outboard engines intended to be used for transportation to and from local mariculture rafts. However, many Hong Kong fishermen employ boats with P4/7 license to fish in inshore waters. Thus, they are categorized as the P4/7 sector.

When respondents were asked which scenario of the future they preferred, none chose to stay in the present situation (status quo). Different groups of fishermen had different opinions about the range of proposed management policies, including the designation of partially or fully no-take areas, seasonal and annual travel bans. The most prominent difference relates to the creation of no-trawl IPAs. While this had support from the P4/7 sector, it was, not surprisingly, opposed by the trawl sector. However, there were divergent opinions within the trawl sector. The big trawlers from one of the main fishing organizations opposed the policy outright, whereas smaller vessels (Tolo trawlers) were more receptive to the idea if they were to receive appropriate compensation.

Fuel cost has become the biggest concern for fishermen as the high fuel price has largely lowered the profitability of all fishing sectors. Currently, government fuel subsidies cost taxpayers an estimated HK$ 48 million annually, while management of the fisheries, including enforcement, costs HK$ 24 million. In contrast, estimated benefits from the fisheries are roughly HK$ 150 million. This suggests that the economic performance of Hong Kong’s fisheries is poor. The fisheries are sustained largely through the provision of government aid. Big trawlers are the worst affected by rising fuel costs due to their high fuel consumption. This is exacerbated by the fact that much of their capital is tied up in the vessel. It seems unlikely that the problem of high and increasing fuel costs is going to be solved soon. Also, the elimination of government subsidies that maintain or increase fishing capacity is part of ongoing World Trade Organisation (WTO) negotiations. If WTO agreement on subsidies elimination is reached, it may not be possible for Hong Kong to continue providing subsidies to its fishing sector (including the fuel subsidy). It may therefore be strategic for fishermen to leave the fishing industry. This is probably why up to 75% of fishermen are willing to participate in a buy-back scheme. It is important for both the government of Hong Kong and fishermen to seize the opportunity to restructure marine fisheries to ensure restoration and sustainability of the resources while helping fishermen adjust to the change.

Government can work to increase job and livelihood diversification for fishermen. At the moment, fishermen’s ability to diversify their livelihood is constrained by factors beyond their control. These include a) strict regulations for converting fishing vessels to meet requirements for transporting passengers, as well as strict guidelines for commercial operation of recreational raft fishing (especially for the P4/7 sector); b) shrinking demand for low-wage labour suitable for the current fishermen in Hong Kong; c) limited market and growth potential for recreational fishing and diving industries; and d) difficulties for fishermen wanting
to sell their boats as there is little demand for fishing vessels. In addition, fishers acknowledge that their poor education is an obstacle to finding employment in other sectors.

Surveyed fishers consistently indicated that coastal development and pollution had affected fish stocks (both mariculture and capture). This important observation, supported by other studies, suggests the need for integrated coastal zone management in tandem with fisheries management to help deal with the problems of Hong Kong waters in a holistic manner. Successful reform of the mariculture industry, which is currently in decline, also offers potential benefits such as a) alternative livelihoods for fishers; b) reduction of negative impacts of mariculture on capture fisheries; and c) serve as a good source of income and seafood for Hong Kong.

We observed divergent opinions about protected areas in our survey. Dive respondents were more optimistic about the creation of no-take marine parks. Recreational fishing respondents saw no-take marine parks from two perspectives: on the positive side they thought it would attract more recreational fishers by increasing the abundance of fish. On the other hand, it might decrease their business as recreational fishing would be banned in marine parks. A majority of the fishers interviewed thought that protected areas did not provide any sort of benefits. Contrary to findings in other countries, most of the fishers did not think that protected areas had increased fish abundance or fish catch. Generally, the fishers were knowledgeable about the various management initiatives (e.g., Fisheries Protection Areas, Marine Parks and Reserves, etc.) proposed by the government. However, many of them did not believe the claims by the government, environmental groups or academia on the usefulness of the protected areas.

The negative opinions of fishers on the efficacy of marine parks may be a result of the lack of noticeable increase in catches and fish abundances from previously designated marine parks in Hong Kong. We think that their perceptions of failure are real and are likely due to sustained licensed and illegal fishing within the marine protected areas, so that fish abundance did not rebuild as anticipated. Nevertheless, the negative perception towards protected areas identified here may partly result from a limitation of the livelihoods survey and interview/questionnaire design.

A critical pre-requisite for successful restructuring of the fishing industry is effective control of fishing effort. To this end, the government should implement the fishing license scheme as soon as possible to lay the groundwork for other initiatives aimed at helping local fishing communities by restoring fishery resources. This re-emphasizes and reiterates the recommendations from earlier fisheries resources consultancy studies. Without a fishing license scheme, the number of vessels fishing in Hong Kong waters cannot be controlled, and vessels bought out may seep back in or be replaced by others.

In conclusion, this survey suggests that a sizable proportion of fishers in Hong Kong is willing to pursue alternative livelihoods under a well-designed fisheries adjustment program. Most fishers are pessimistic about the future development of Hong Kong fisheries because of the declining catches and increasing costs. Many are willing to switch to non-fishing jobs if opportunities are available. It therefore appears that the time is ripe for the Government of Hong Kong to work with fishers and NGOs to help secure the flow of fisheries benefits from Hong Kong waters to both current and future generations of citizens, and to assist those who wish to switch to alternative livelihoods to do so.

**Part 2: Economic impacts to the fishing industry and society**

The goal of this part of the report is to assess the potential economic gain or loss to fishers and to Hong Kong society as a whole due to the implementation of different fishery management scenarios. The economic loss/gain to fishers is assumed to be the difference between the discounted net present value of profits (that is, the sum of profit over time in today's dollars) made under the status quo (present situation) management and that estimated under the different proposed management scenarios.

We undertake 3 types of assessments in this report: 1) cost-benefit analysis; 2) ecosystem modeling; 3) feasibility analysis using results from the livelihood study and ecosystem modeling.

The economic loss/gain to society is estimated using a cost-benefit analysis of the fisheries to society under different management scenarios. The benefits component includes profits from commercial fishing and from marine-related livelihoods such as recreational fishing, scuba diving and tourism. The cost
component includes: ex gratia and vessel buy-back; monitoring, control and surveillance; retraining fishers; and subsidies on fuel and modification of fishing vessels to operate alternative livelihoods.

A distinction between benefits to fishers and to society is important because the gap between the outcomes preferred by private actors (i.e., fishers in the case of fisheries) and society in the use of environmental and natural resources is at the core of the challenges facing managers of these resources. This gap is due to what economists call 'externalities', which are costs or benefits arising from an economic activity that affects people (other than those who decide the scale of the activity). In this study, two things differentiate the way we calculate net present values to the fishers (represented by Hong Kong's various fishing sectors) and society. First, society is assumed to have a longer time horizon than private actors. Second, private actors, because they are businesses, are assumed to apply the market discount rate to calculate their present value of benefits, while society is assumed to use a lower discount rate because of its broader concerns, such as ensuring fisheries benefits to future generations (e.g., fish protein supply).

Data on benefits and costs of the management scenarios to the fishing sectors and to society are based on government published and unpublished data, results from the fishers' livelihood survey, and ecosystem modeling. Catches from Hong Kong waters were estimated from the government Port Survey in 2001/02. Analysis using global catch data shows that the government estimated catches in 2001/02 from Hong Kong waters appear to be up to 300% higher than the expected catches from areas that are geographically similar to Hong Kong. Thus, the catches are likely to be over-estimated by the government. Modeling of the Hong Kong marine ecosystem is based on previously-constructed ecosystem models (using the Ecopath with Ecosim modeling approach), updated with 2001/02 catch data. Notwithstanding the uncertainty in the input data, the results from the ecosystem simulation modeling (using Ecopath with Ecosim) are generally robust to such uncertainty.

In terms of net economic benefits, both fishers (as a group) and society would likely increase their long-term benefits (25 years for fishers and an infinite time-horizon for society) by moving away from the current status quo management. In particular, benefits to society are projected to increase many-fold. From an economic perspective therefore, the status quo scenario is not an optimum option. However, some fishing sectors and communities may lose from changing the status quo. Also, the performance of the private sector in the short and medium terms (5 and 10 years) is lower than in a 25-year time horizon. These may explain the opposition to change from some fishing sectors and communities. Given the potential large benefits to society of alternatives to the status quo, it may be beneficial to compensate losers in order to initiate action. This also highlights the need for the development of well-designed alternative livelihood schemes.

Overall, we estimate that management scenarios with a territory-wide trawl ban and no-take marine parks would deliver the highest net benefit to society (about HK$ 2.8 billion more than the status quo). The increase in net benefits, despite a decrease in landed values, agrees with economic theory: in a depleted, open-access system such as Hong Kong, competition among fishers leads to levels of fishing capacity or effort much greater than needed to achieve maximum economic rent, thereby wasting potential economic benefits from the resources. As fish stocks decline, the situation becomes exacerbated, with even more fishing effort required to maintain the same level of catch.

In terms of biomass, our modeling suggests that (i) no-trawl fisheries protection areas (FPAs) and partially-protected marine parks would be less effective in restoring the biomass of most fish groups, especially the large-bodied fishes, than scenarios with no-take FPAs and marine parks; (ii) a combination of no-take FPAs and marine parks would be effective in restoring the biomass of reef-associated fishes; (iii) for invertebrates, medium and large non-reef fishes and large pelagic fishes, a territory-wide trawl ban would be most effective in restoring their biomass; (iv) effects on the biomass of invertebrates and non-reef fishes could be seen in the short to medium term (5 years and 10 years); (v) reef fishes (particularly medium and large-bodied fishes) respond relatively slowly to different fishing effort levels in each scenario. In fact, our analysis shows that major changes in their biomass would be expected only after 25 years.

The slow recovery of major exploited stocks highlights the importance of protecting local spawning and nursery grounds. The proposed locations of the FPAs have been identified as spawning and nursery grounds for commercial species. In fact, this is a major reason for proposing the creation of FPAs in these
Appendix E: Application Notes for the Consent of Recreational Angling on Mariculture Rafts and the Code of Practice
因素包括：

- 區內業主持有人、養魚組織及有關地區人士對有關申請的意見，及其理據；
- 有關申請會否影響區內其他養魚活動的正常運作（如魚排休閒垂釣活動、接載乘客的開釣船隻進出魚類養殖區會否對其他養魚戶造成影響等）；
- 該魚類養殖區內的養殖情況（如魚排數目及密度等）；
- 有關申請會否對附近環境造成不良影響（如噪音滋擾、污染、治安、廢物處理及管理等問題）；
- 申請是否有一體解効成以避免或減少魚排休閒垂釣活動對養魚活動或附近環境所帶來的影響；
- 申請人最近是否有違反魚類養殖業規則/魚類養殖條例的違規事項。

(2) 在提交所有所需資料後，如沒有收到對申請的反對意見，漁護署會於1個月內向申請人回覆有關魚排休閒垂釣申請的初步結果。

第二階段：發出魚排休閒垂釣同意書

(3) 申請人應在取得漁護署發出對申請的原則上同意後，才進行有關魚排休閒垂釣的籌備工作。申請人須附合下列要求及遞交有關證明文件：

- 在魚排上設置足夠的安全及衛生設備；
- 有關監測/顧問公司所發出就其漁業養殖業牌照的魚排用來進行魚排休閒垂釣活動的安全保證書；
- 有關保險公司對魚排休閒垂釣活動的有效第三者保險文件；及
- 垃圾及污水處理計劃書和有關污水處理公司對有關清潔污水的有效合約文件。

(4) 漁護署當收到以上文件後，會詳細審閱有關文件的內容條款並安排職員到申請人的魚排核實有關資料。

（2009年1月版）
(5) 在收到所有所需的文件及核實後，漁護署會於 14 天
內向申請人回覆有關申請的結果。

(丁) 魚排休閒垂釣同意書

(1) 魚排休閒垂釣同意書的有效期一般與有關魚排的安全
保護書/第三者保険/清潔污水合約的有效期相同，以
較前者為準，牌照持有人只可在同意書有效期內從事
魚排休閒垂釣活動，否則會違反海魚養殖業牌照的規
定。

(2) 牌照持有人必須嚴格遵守同意書上的所有條件包括下
列各項：

- 繼續從事海魚養殖；
- 魚排休閒垂釣只准使用手釣和魚竿垂釣；
- 確保垂釣活動，包括船隻出入，不影響養殖區內
任何養殖戶的養魚操作；
- 提供適當的污水及垃圾處理安排和保留污水處理
的數據以供查核，以確保垂釣活動不影響養殖區
內的水質；
- 不准在魚排上或養殖區內進行任何明顯或有可能
會影響環境或養殖操作的活動，包括但不限於燒
烤、煮食、卡拉 OK、其它水上活動以及使用誘餌
粉。除海魚養殖例外，任何在魚排上的活動亦
必須符合所有有關法例的要求；
- 確保用作垂釣的魚排的結構、設施、維修及使用
是遵照所提交有效的安全保護書的規定；
- 爲垂釣人士提供有效的第三者保険；
- 在安排垂釣活動時必須有足夠人員在場監管垂釣
人士的活動；
- 在垂釣魚排上顯眼地方張貼安全保護書機構簽發
出的魚排安全乘載人數告示、許可垂釣範圍圖
則，由本署發出的魚排垂釣守則告示和本同意書
的副本；
- 除於緊急情況下，晚上禁止使用揚聲器或擴音系
統；及
- 漁護署署長可在同意書上施加任何其他條件規限
並會根據申請人最後報報的地址將施加的條件以
書面通知申請人。

（2009年1月版本）
(3) 如牌照持有人違反同意書的條件規定，或有關魚排休閒垂釣活動對區內的養殖活動或環境造成影響，漁護署會考慮取消或拒絕續發有關同意書。

(4) 牌照持有人如計劃繼續從事魚排休閒垂釣活動，必須在同意書有效期屆滿前最少3個月向漁護署提出續期申請，並提交有關的證明文件。

(戊) 索取及遞交申請表格

(1) 索取申請表格方法：

可於辦公時間內親臨
漁農自然護理署
長沙灣道303號
長沙灣政府合署8樓
漁業執行及特別項目科
牌照及執照組

或

於漁護署網頁下載（網址http://www.afcd.gov.hk）

(2) 遞交申請表：

妥妥的申請表（正本）可以親自遞交或寄往漁農自然護理署
地址：九龍長沙灣道303號
長沙灣政府合署8樓
漁業執行及特別項目科
牌照及執照組

辦公時間：星期一至五上午8時30分至下午5時45分（下午12時30分至1時30分休息）

查詢電話：2150 7108
（己）有關收集個人資料的目的

資料轉交的類別

(1) 本人在魚排休閒垂釣同意書申請表內填報的個人/公司資料，是自願供給漁護署作爲處理有關魚排休閒垂釣同意書申請之用。

查閱個人資料

(2) 根據《個人資料(私隱)條例》第 18 及 22 條以及附表 1 第 6 原則，個人有權查閱及改正其個人資料。

查詢

(3) 如需查閱或修改以上所提供的資料，可向本署提出：

漁業署
九龍長沙灣道 303 號
長沙灣政府合署 6 樓
漁業執行人區及特別項目科
牌照及執行組

電話：2150 7108

（2009年1月版本）
魚排釣守則

安全第一

嚴禁使用攔魚器

查詢

緊急貨物保管箱

固體廢棄物的收集

污染水資源

瀕危獲利物種

如發現有人使用違法物品，將會報告相關人士採取行動。

查詢

http://www.aafcc.gov.hk

政府總署 2155708 香港
魚排閒釣

魚排閒釣是指以手釣或魚竿垂釣在魚排上進行的釣魚活動。有關活動只可在獲得漁業暨天然護理署（漁護署）准許的魚排上進行。

獲得漁護署准許的魚排

經濱護署准許進行閒釣的魚排持有人，必須在垂釣魚排上顯眼地方貼上漁業暨天然護理署（漁護署）發出的魚排閒釣證書及同意書。

注意

- 留意本身和他人安全
- 對待海洋生物
- 放生幼魚
- 放生即將生產的魚類

切勿

進行任何滋擾養殖魚操作的活動，包括但不限於：
- 燒烤
- 亂拋垃圾
- 污染海水
- 進行其他水上康樂活動
- 喧囂
- 使用魚網及浸網
- 使用誘餌粉
- 在許可釣魚範圍外活動