



JC-WISE
Water Initiative on
Sustainability and Engagement
賽馬會惜水·識河計劃

My River, My Community 河處是吾家

Guided Field Trip to Tung Chung River (東涌河) Catchment



Handbook for Tour Guides



Faculty of
Social Sciences
The University of Hong Kong
香港大學社會科學學院

捐助機構 Funded by:



香港賽馬會慈善信託基金
The Hong Kong Jockey Club Charities Trust
同心·同步·同進 RIDING HIGH TOGETHER

Field Study of Tung Chung River Handbook for Tour Guides

Contents

	Page
1. Notes to Field Study of Rivers	2
2. Tung Chung River and the fieldwork sites	3
3. About Tung Chung River	4
4. Ecology	7
5. Fieldwork site A: Shek Pik Reservoir Intakes	8
6. Fieldwork site B: Shek Mun Kap	10
7. Fieldwork site C: Shek Lau Po – Reinstated river section	12
8. Fieldwork site D: Shek Lau Po – Channelised lower course	14
9. Fieldwork site E: Ngau Au – the confluence of East and West Streams	16
10. Fieldwork site F: Estuary	18

1 Notes to Field Study of Rivers

Safety Measures

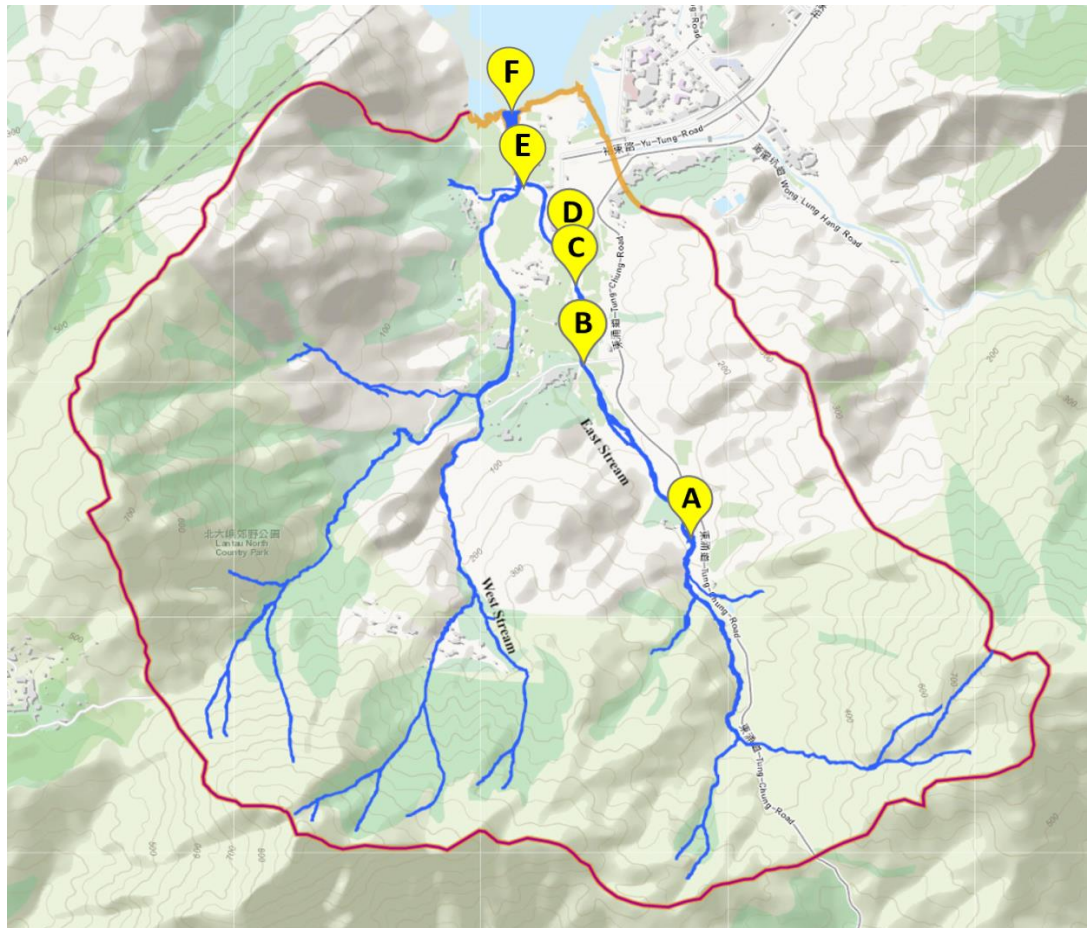
1. Wear long-sleeved shirts and trousers to prevent mosquito bites and cuts caused by plants;
2. Wear slip-resistant shoes; and
3. Leave the vicinity of the river immediately if there is a sudden rise of the water level or an increase in the turbulence and turbidity of the stream flow.

Code of conduct

1. Protect the countryside and its natural landscapes, do not pollute rivers and litter;
2. Do not disturb vegetation, wildlife and their living environment;
3. Respect villagers, do not damage private properties, crops and livestock.

2 Tung Chung River and the fieldwork sites

Map 2.1: Tung Chung River and the fieldwork sites



The fieldwork sites (refer to Map 2.1)

A	• Shek Pik Reservoir Intakes (石壁水塘集水口)
B	• Shek Mun Kap (石門甲)
C	• Shek Lau Po -- Reinstated river section (石榴埔 -- 已修復的河段)
D	• Shek Lau Po -- Channelised lower course (石榴埔 -- 渠道化下游)
E	• Ngau Au -- the confluence of East and West Streams (牛凹 -- 東、西河匯流點)
F	• Estuary (河口)

3 About Tung Chung River

1. About Tung Chung River

Tung Chung River flows through northern Lantau Island at the southwest of Tung Chung New Town. Originated at an attitude of 880 m between Fung Leng (鳳嶺) and Wong Leng (凰嶺) of Lantau Peak (鳳凰山), it is the river with the third highest headwater in Hong Kong.

The main stream (West Stream) of Tung Chung River flows north through Pak Tin Mun (北天門), Tei Tong Tsai (地塘仔), Chap Mun Tau (閘門頭) and Mok Ka (莫家). Before entering Tung Chung Bay, the main stream merges with a major tributary (East Stream) at the location between Ngau Au (牛凹) and Wong Ka Wai (黃家圍). Tung Chung River is short and steep, with a horizontal length of 4.31 km and an average gradient of 0.204 (or 1:4.90). The size of the river catchment is about 11.09 km².

Figure 3.1: Tung Chung River Valley



2. River Management

Since Tung Chung River is remotely located and has been designated as a water gathering ground by Water Supplies Department, the natural landscape is retained in most river sections. In fact, Tung Chung River is one of the few local rivers that have not undergone extensive channelisation.

Rural and Agricultural Land Use

Given high soil fertility and plentiful river water supply in the middle and lower courses, cultivation activities in the river valley have been performed as early as the Ming Dynasty. Owing to the decline of the local agricultural sector as a result of economic restructuring, farmers there have stopped farming since the 1960s.

Waterworks

Tung Chung River is a major water source for Shek Pik Reservoir. The river water is collected by underground water tunnels and transferred to Shek Pik Reservoir via an underground pipe that spans between Ngong Ping and Lantau Peak.

Figure: 3.2: Shek Pik Reservoir

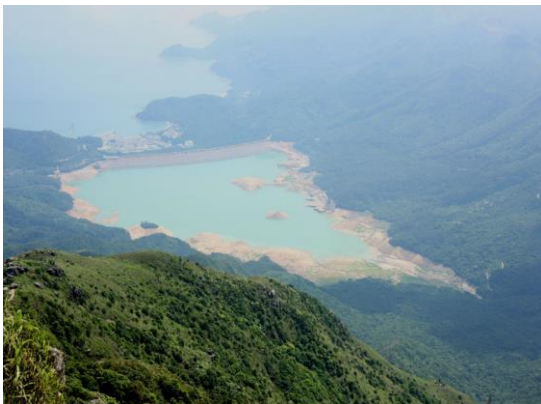


Figure 3.3: Reservoir intake at the West of Lo Hon Monastery



Improvement to Tung Chung Road

The improved Tung Chung Road intersects with a few tributaries of Tung Chung River. To protect the road and villages downstream from the risk of flooding, several artificial channels were built to divert water flows. Zigzag ramps, fish slopes or steps have also been added to culverts to alleviate the environmental impacts of river training works on aquatic fauna (Figure 3.4).

New Town Development

Drainage works is one of the important infrastructure developments in new town development, and Tung Chung River is no exception. In fact, a river section of 650 m to the north of Shek Lau Po has undergone channelisation works. In the Tung Chung New Town Extension project, this river section will be revitalised into a river park for public recreational use and promoting “water-friendly” culture.

Figure 3.4: Zigzag ramps are constructed to lessen the environmental impacts of river training works



Figure 3.5: Channelised river section



“Rivers@HK Database”

[Tung Chung River > Tung Chung River Location and Catchment > River Management]

<https://goo.gl/rb8LXg>

4 Ecology

Being one of the few local rivers that have not undergone extensive channelisation, the natural landscape along Tung Chung River has been largely retained. With excellent water quality, the second highest fish species diversity in Hong Kong has recorded in Tung Chung River. This includes Beijiang Thick-lipped Bard (*Acrossocheilus beijiangensis*), a species of conservation concern both locally and internationally. Moreover, some rare tree species including those in the genera of *Exbucklandia*, *Magnolia* and *Illicium* can be found while part of the river catchment at the upper course has been designated as ‘Site of Special Scientific Interest’ (SSSI).

The discharge in the lower course has reduced appreciably since a considerable amount of river water in the upper and middle courses has been diverted to Shek Pik Reservoir. Besides, in Shek Lau Po, due to the impact of channalisation on the habitats, the section of East Stream has experienced a reduction in the diversity of aquatic organisms. Following the confluence of East Stream and West Stream in the lower course, Tung Chung River enters the estuarial mudflat, which is of significant ecological value. Species of conservation value like horseshoe crabs and pipefish could be found.

Figure 4.1: Beijiang Thick-lipped Bard (*Acrossocheilus beijiangensis*)
© Matthew Sin



Figure 4.2: Tri-spine Horseshoe Crab (*Tachypleus tridentatus*)



“Rivers@HK Database”

[Tung Chung River > Ecology]

<https://goo.gl/rb8LXg>

5 Fieldwork site A: Shek Pik Reservoir Intakes

Shek Pik Reservoir Project

In the 1950s and 60s, Hong Kong faced chronic water shortages as a result of rapid population growth and successive droughts. In order to alleviate the acute situation, the government decided to construct a reservoir in Shek Pik Heung, southwest of Lantau Island. With a capacity of 24 million m³, it was once the largest reservoir in Hong Kong. Three water intakes were built in the upper reaches of Tung Chung River for collecting river water which would then be transferred to Shek Pik Reservoir via an underground tunnel. About 10 million m³ of water from Tung Chung River is transferred to the reservoir annually, accounting for around 40% of the total capacity of the reservoir. As the upper reaches of the Tung Chung River was intercepted for freshwater supply, water flow at the lower reaches was reduced substantially, exerting negative impact on river ecology and agricultural activities.



‘My River, My Community’ – WISE Choice

[Site A: Shek Pik Reservoir Intakes]

<https://goo.gl/DA7Amq>

Map 5.1: Field study site at Shek Pik Reservoir Intakes

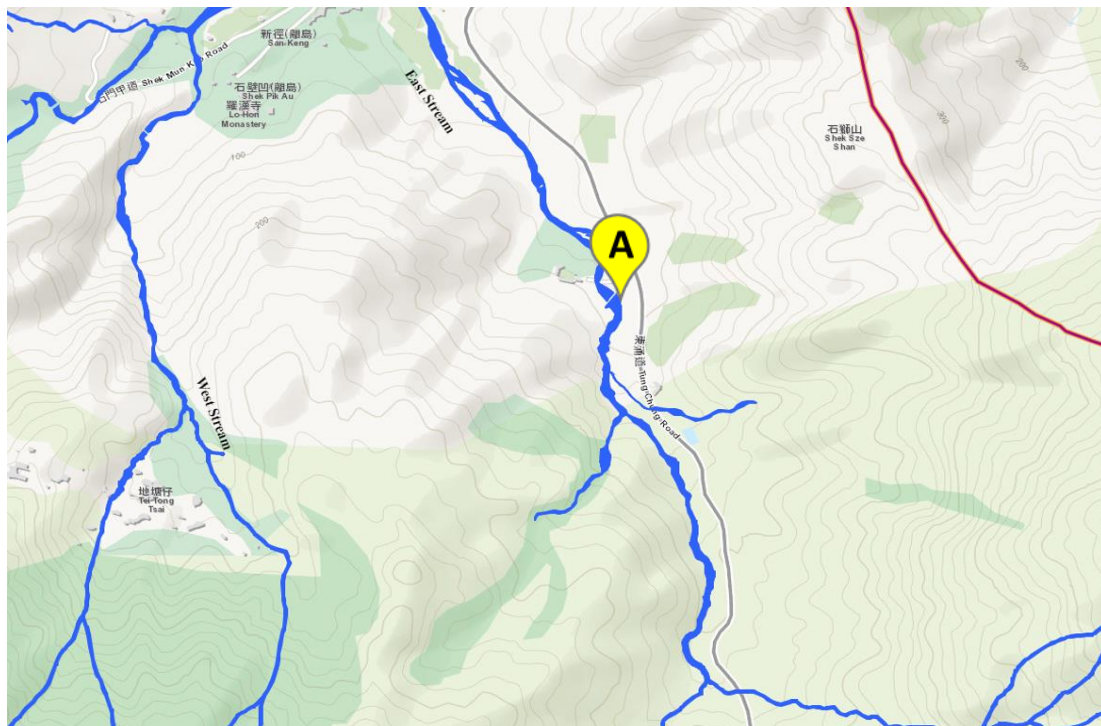
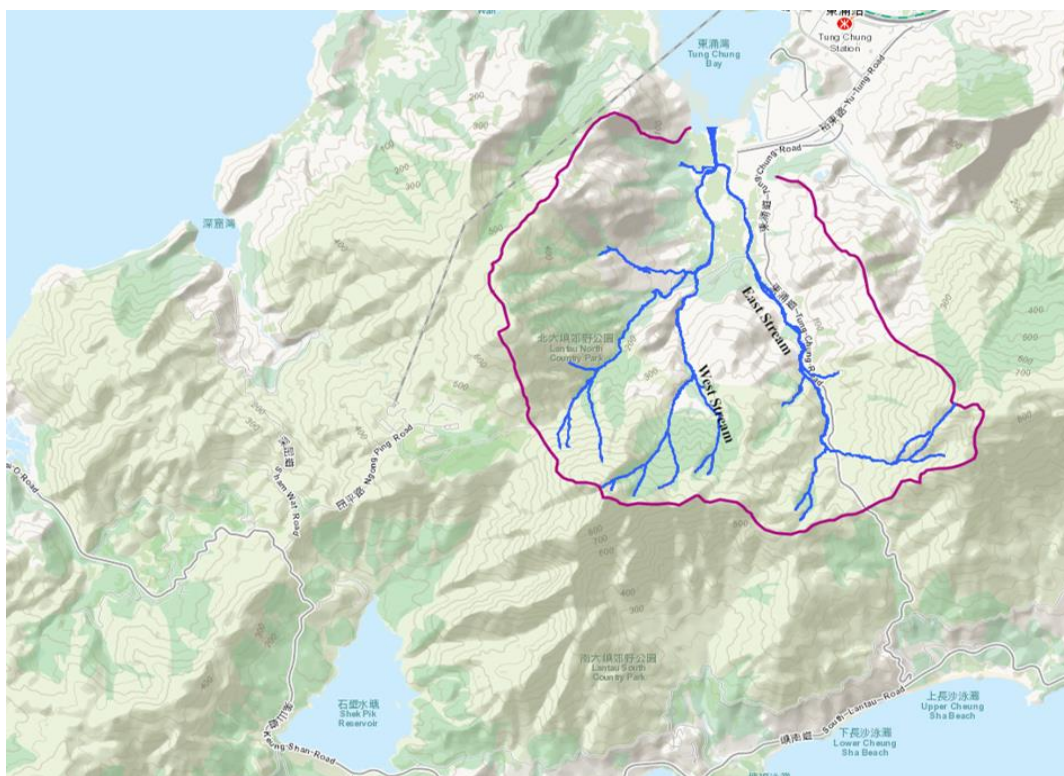


Figure 5.1: Shek Pik Reservoir Intakes



Map 5.2: Location of Shek Pik Reservoir and Tung Chung River Catchment



6 Fieldwork site B: Shek Mun Kap

The ecological value of Tung Chung River

Tung Chung River is a river of high ecological value, and has rich fish diversity, the second highest in Hong Kong. The upper and middle courses of Tung Chung River, both East Stream and West Stream, have been designated as “Ecologically Important Streams” (EIS) by the Agriculture, Fisheries and Conservation Department (AFCD). The natural stream at Shek Mun Kap in the middle course of East Stream, has abundant flow and is home to a diversity of fish and crustaceans. In addition to common local species such as Chinese Barb (*Puntius semifasciolatus*) (五線無鬚鯪), Broken-band hillstream Loach (*Liniparhomaloptera disparis*) (擬平鰍), and Sucker-belly Loach (*Pseudogastromyzon myersi*) (麥氏擬腹吸鰍), rare fish and species of conservation concern including the Beijiang Thick-lipped Barb (*Acrossocheilus beijiangensis*) (北江光唇魚) have also been recorded.

Besides, Shek Mun Kap is one of the oldest villages in Tung Chung. The gate in front of the village with Feng Shui walls on both sides, is a Grade III historic building classified by the Antiquities and Monuments Office.



‘My River, My Community’ – WISE Choice

[Site B: Shek Mun Kap]

<https://goo.gl/DA7Amq>

Map 6.1: Field study site at Shek Mun Kap

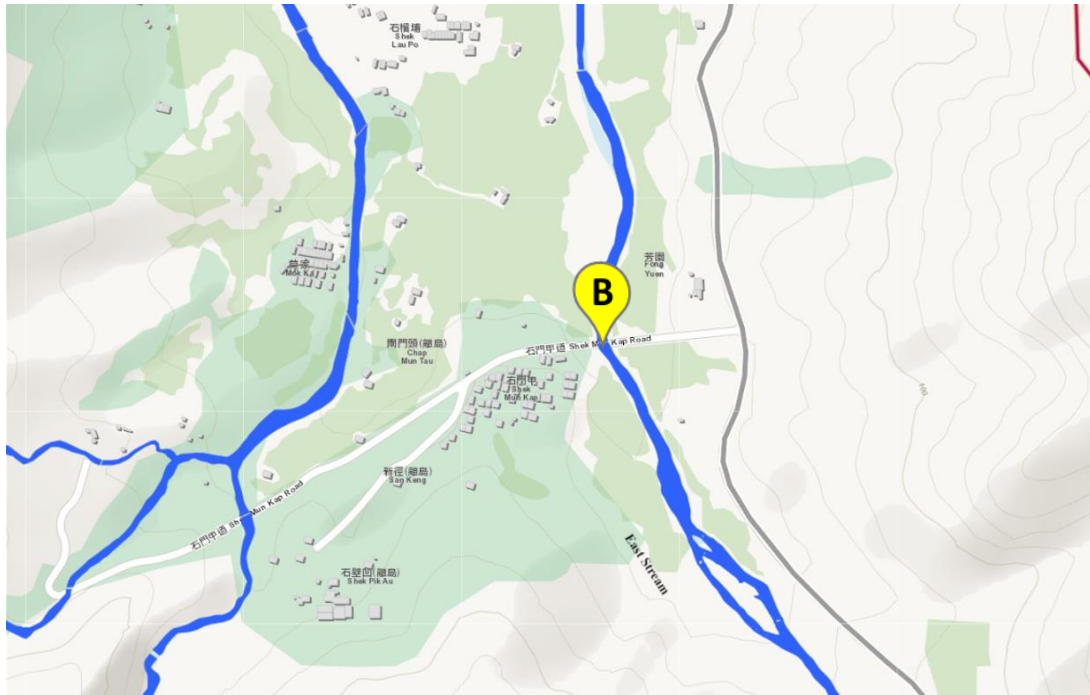


Figure 6.1: Natural stream at Shek Mun Kap

Figure 6.2: Beijing Thick-lipped Barb (*Acrossocheilus beijiangensis*)
© Matthew Sin



Figure 6.3: A gate in front of the village



7 Fieldwork site C: Shek Lau Po – Reinstated river section

Tung Chung River illegal excavation incident and restoration work

The bedrocks in Tung Chung River are mostly volcanic rocks while the riverbed is covered with boulders and pebbles. In 2003, it was discovered that more than 1000 tons of rocks on the riverbed were illegally excavated in the channel between Shek Lau Po and Shek Mun Kap, stretching for about 330 metres. Some of them were used in the construction of the Inspiration Lake near Hong Kong Disneyland. The excavation incident seriously damaged the river ecology. Due to the lack of protection from large boulders, the riverbed was susceptible to erosion, leading to the deterioration of water quality.

In response to the illegal excavation incident, the government set up an inter-departmental Task Force and implemented a reinstatement plan in 2004. Members from the Advisory Council on the Environment and environmental groups were invited to give advice on the plan from the ecological perspective. The ecology of the river has been largely restored nowadays.



‘My River, My Community’ – WISE Choice

[Site C: Shek Lau Po – Reinstated river section]

<https://goo.gl/DA7Amq>

Map 7.1: Field study site at Shek Lau Po – Reinstated river section

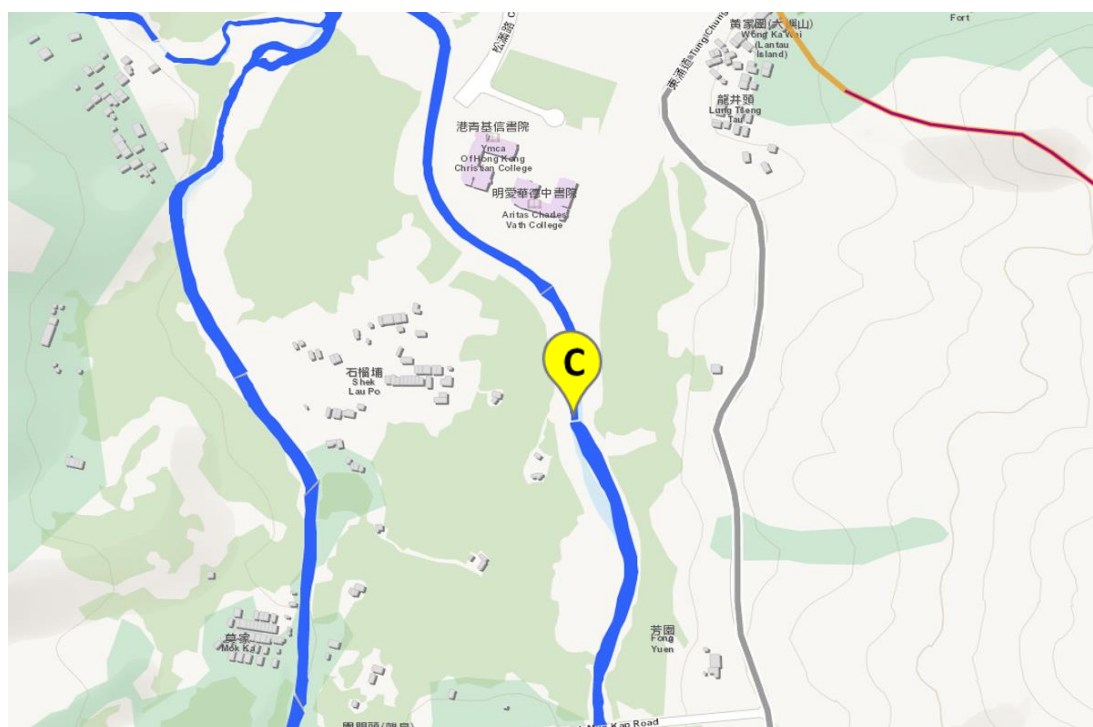


Figure 7.1: The ecology of the reinstated river section has been largely restored (towards upstream)

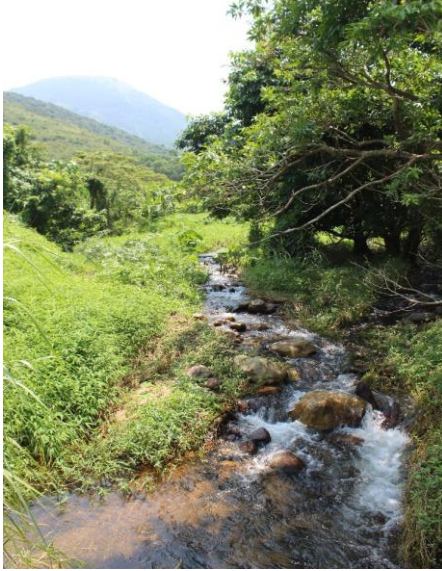


Figure 7.2: The ecology of the reinstated river section has been largely restored (towards downstream)



References for Tung Chung River illegal excavation incident and restoration work:

	<p>「配合迪士尼發展：東涌河面目全非，政府縱容偷石砌湖毀生態」， 蘋果日報，2003年12月4日 (Chinese Only) https://goo.gl/vYmhuw</p>
	<p>Agriculture, Fisheries and Conservation Department (2006). <i>A Showcase of Stream Restoration</i>. https://goo.gl/WaqPRh</p>
	<p>Environment, Transport and Works Bureau (2005). <i>Progress Report on the Restoration of the Tung Chung Stream</i>. (Legislative Council Discussion Paper) https://goo.gl/dATo3P</p>

8 Fieldwork site D: Shek Lau Po – Channelised lower course

Tung Chung River Park Development

The government has launched the study of Tung Chung New Town Extension Plan since the 2010s. To address the conservation concerns of the public and green groups, a River Park, which is the first of its kind in Hong Kong, will be established at Tung Chung River. It aims at conserving river ecology, providing public open space and promoting “water-friendly” culture. The River Park will include a channelised section north of Shek Lau Po and a natural stream between Shek Mun Kap and Shek Lau Po. The park will be comprised of three zones, namely a passive recreation and conservation zone, an active zone and a river revitalisation zone.



‘My River, My Community’ – WISE Choice

[Site D: Channelised Lower Course]

<https://goo.gl/DA7Amq>

Map 8.1: Field study site at Shek Lau Po – Channelised lower course

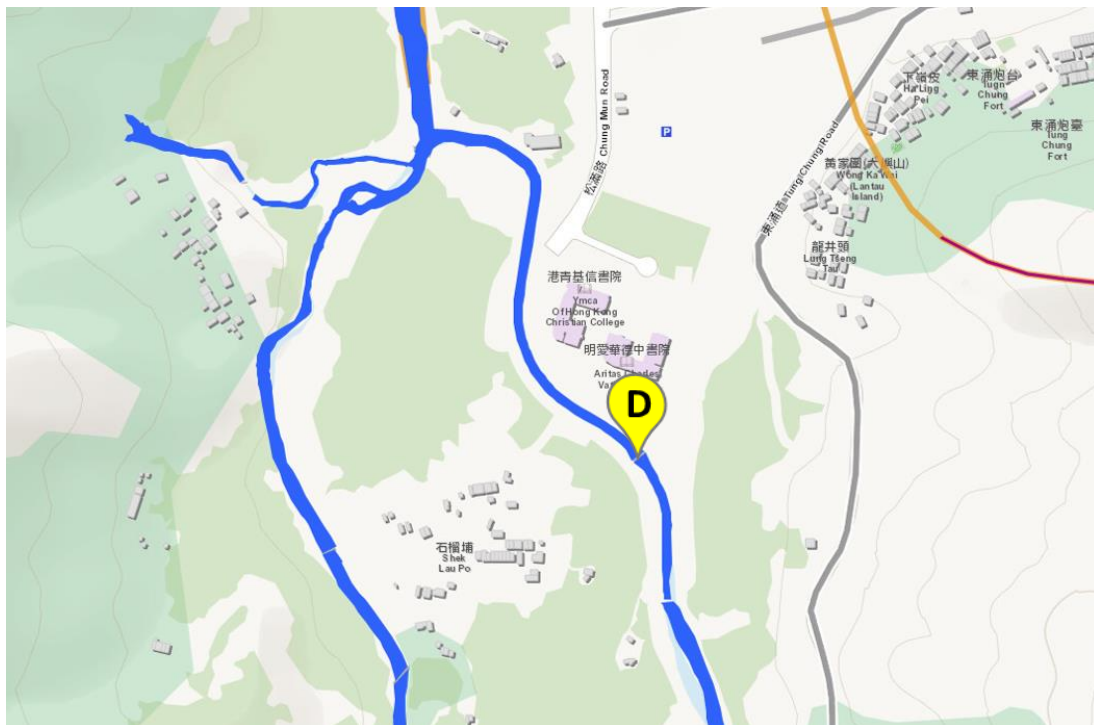





Figure 8.1: This channelised section will be revitalised into a River Park



References for Tung Chung River Park Development

	<p>Development Bureau, Civil Engineering and Development Department (2017). Project Background. <i>Tung Chung New Town Extension</i>. https://goo.gl/N4144f</p>
	<p>Drainage Services Department (2016). Tung Chung River Park. <i>DSD Sustainability Report 2015-16</i>. https://goo.gl/Vm8ZiX</p>
	<p><i>Green groups jointly call for extension of proposed Tung Chung River Nature Park</i> (2016). (Press Statement). https://goo.gl/A8JU6L</p>

9 Fieldwork site E: Ngau Au – the confluence of East and West Streams

Tung Chung River is composed of East Stream and West Stream. West Stream originates between Fung Peak and Wong Peak, at an altitude of 880 meters. East Stream originates at an altitude of 815 meters, west of Sunset Peak. The two streams merge at a location between Ngau Au and Wong Ka Wai, about 560 meters way from the river mouth, before entering the Tung Chung Bay.



‘My River, My Community’ – WISE Choice

[Site E: Ngau Au – the confluence of East and West Streams]

<https://goo.gl/DA7Amq>

Map 9.1: Field study site at Ngau Au – the confluence of East and West Streams

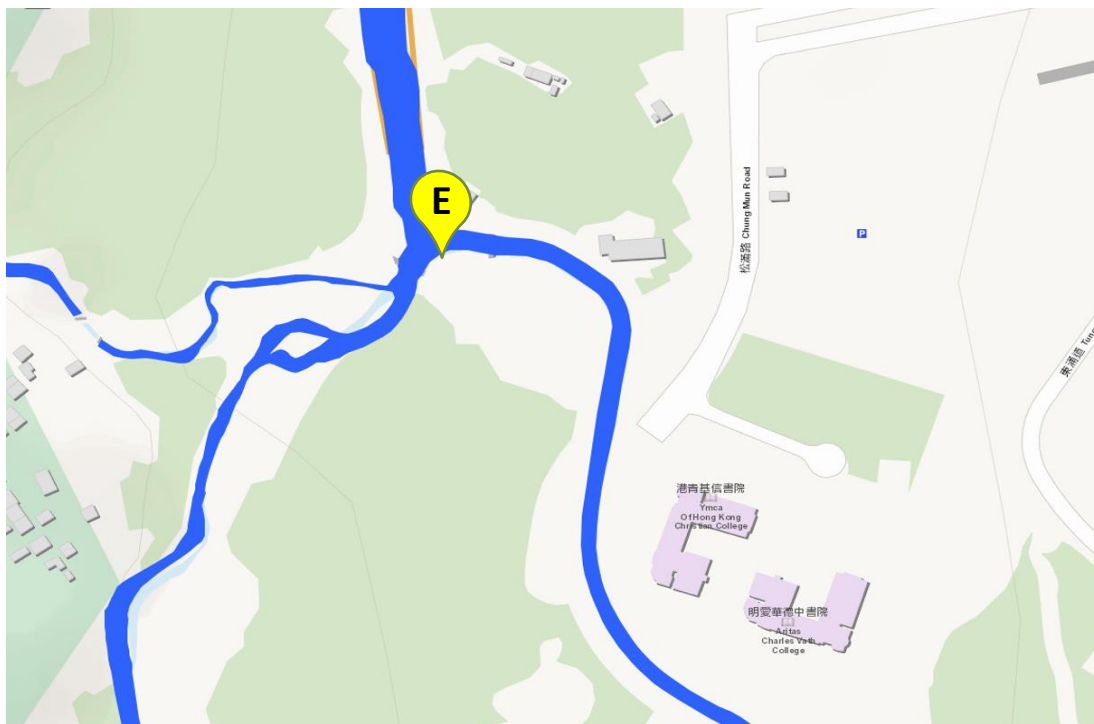


Figure 9.1: The confluence of East Stream and West Stream



Figure 9.2: West Stream



10 Fieldwork site F: Estuary

Ecological value and conservation of the estuary

Estuary of Tung Chung River is one of the few estuaries in Hong Kong that still retains its natural state. Extensive mudflats at the river mouth provide habitats for a diversity of living organisms. A wide variety of fish could be found in the river mouth, such as eels, mullets and pufferfishes. Mangroves at estuary are also home to various species of crustaceans and mollusks, including species of conservation value like horseshoe crabs and pipefish.

In 2012, the government commissioned the “Planning and Engineering Study on the Remaining Development in Tung Chung – Feasibility Study” which includes a plan to reclaim the Tung Chung Bay, and public consultations were conducted between 2012 and 2014. To protect the biodiversity of the Tung Chung Estuary, several green groups issued a joint statement, urging the government to suspend the proposal of reclaiming the estuary. Finally, the plan of reclamation was put aside; furthermore, the estuary region was zoned as “Coastal Protection Area”.



‘My River, My Community’ – WISE Choice

[Site F: Estuary]

<https://goo.gl/DA7Amq>

Map 10.1: Field study site at Estuary

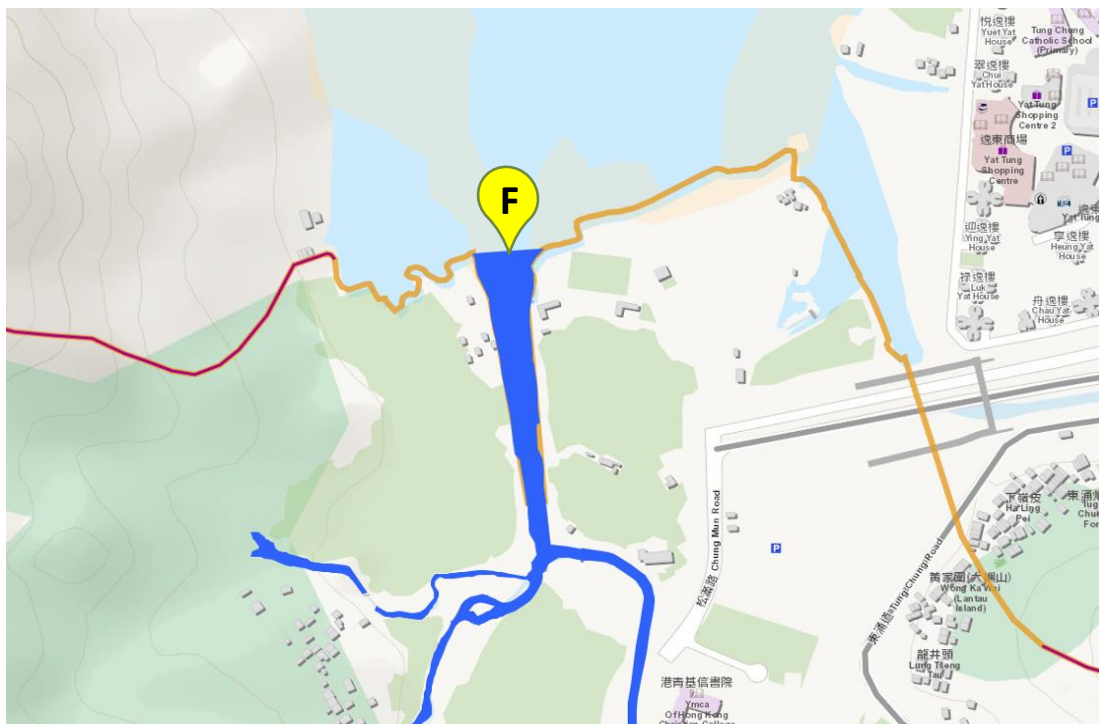


Figure 10.1: Estuary of Tung Chung River





Figure 10.2: Hau Wong Bridge at the river mouth



Figure 10.3: Tri-spine Horseshoe Crab (*Tachypleus tridentatus*)



References for ecological value and conservation of the estuary

	<p>Green Power (2010). Ecology. <i>Hong Kong River Net: Tung Chung River</i>. https://goo.gl/xhBsNu</p>
	<p>WWF HK (2012). <i>Green Groups Urge for Protection and Conservation of the Estuary</i>. https://goo.gl/N7u9gp</p>