

Issue No. : Issue 1
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**AGREEMENT NO. CE 65/2013 (EP)
POST-CONSTRUCTION ECOLOGICAL
MONITORING OF RIVER IMPROVEMENT
WORKS IN UPPER LAM TSUEN RIVER
SHE SHAN RIVER AND UPPER TAI PO
RIVER – INVESTIGATION**

**POST-CONSTRUCTION ECOLOGICAL
MONITORING REPORT (No. 39)**

Prepared By:

ALLIED ENVIRONMENTAL CONSULTANTS LTD.

For:

Drainage Services Department

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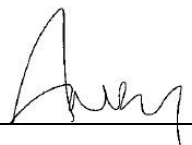
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**Agreement No. CE65/2013(EP)
Post-Construction Ecological Monitoring of River
Improvement Work in Upper Lam Tsuen River, She Shan
River and Upper Tai Po River – Investigation**

**Post-Construction Ecological Monitoring Report (No. 39)
Upper Lam Tsuen River**

March 2017




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April 23, 2017

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April 23, 2017

Ecology Team: China-Hong Kong Ecology Consultants

Post-Construction Ecological Monitoring of River Improvement Work in Upper Lam Tsuen River, She Shan River and Upper Tai Po River – Investigation Agreement No. CE65/2013(EP)

Post-Construction Ecological Monitoring Report (No. 39)

Upper Lam Tsuen River

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1 Introduction

- 1.1 Agreement No. CE65/2013(EP) Post-Construction Ecological Monitoring of River Improvement Work in Upper Lam Tsuen River, She Shan River and Upper Tai Po River – Investigation required a post-construction ecological monitoring programme when the project completed. The collected data are mainly used to assess ecological recovery process and effectiveness of ecological migration proposed and enforced during the construction period.
- 1.2 The scope of the ecological monitoring was detailed in EM & A Manual of the project. In brief, the survey aimed to collect data on abiotic factors such as water quality, substratum characteristics, water flow as well as flora and fauna.
- 1.3 China Hong Kong Ecology Consultants Ltd. was committed by Allied Environmental Consultants Ltd (AEC) to undertake the ecological monitoring tasks for the project for December 2014.
- 1.4 This is the number 39 post-construction ecological monitoring report for the project conducted **on 17th of March 2017**. It contains the following subsections:
- Summary of major points
 - Monitoring Methods and Results
 - Summary and Comments

2 Summary of Major Points

- Field ecological monitoring was undertaken on **17th of March 2017**;
- Fauna and flora along the drainage project sections is in a process of re-establishing or restoration; Plants on river bed was experiencing seasonal changes in abundance and phonological appearance;
- The species richness of odonata was similar to the record of last month;
- Bird diversity and abundance was in natural fluctuation;
- *Paramesotriton hongkongensis* adult was recorded in the potential habitats along the Lam Tsuen River; and
- Fish abundance was similar to last month with slight increase.

3 Monitoring Methodology

3.1 Riparian Vegetation

Riparian vegetation, including aquatic and emergent, was sampled using line transects along the affected river channel and riparian habitat. Species, relative abundance and average heights were recorded. Vegetation surveys were conducted at four selected belt transects with two located at the lower portion (T3 and T4) of the river channel and another two at the upper section (T1 and T2) of the river respectively (**Figure 1**). The belt transects was run across the river channel in order to collect quantitative data of the vegetation, e.g., species inventory, height, percentage cover. Qualitative data of plants was collected by recording plant species, relative abundance along line transect. Nomenclature and protection status of the species followed those documented in Lai *et al.* (2004) and Hong Kong Herbarium (2015).

3.2 Avifauna

Avifauna survey was conducted during post construction monitoring period. Special attention was given to the river channel and corridor area which birds used as feeding and foraging habitat. Avifauna surveys were undertaken in the early morning plus species recorded in the rest of the day when conducting other taxonomic groups (benthic, fish, insect) monitoring. Numerical abundance was recorded at fixed count points within a radius of 30-50m according to landscape feature and visual penetration extent. The duration of the point count of birds was standardized for 10 minutes at each location in order to collect comparable data. Transect count along accessible section of river channel were used in order to collect qualitative data. Binoculars and digital camera were the main items of equipment used. Nomenclature and protection status of the species follows the AFCD website (www.hkbiodiversity.net) and Carey *et al.* (2001).

The point count was conducted at four locations with two located at the lower portion of the river channel (T3&T4) and the other two located at the upper section of the river (T1&T2). The point count and survey transect locations for the bird survey and sampling sites for surveys of other faunal groups and flora were presented in **Figure 1**.

3.3 Adult Odonata Survey

Adult Odonata survey was conducted along transects (**Figure 1**). Binoculars, digital camera and hand net were utilized to aid identification. Numerical abundance, species identity and other notable behavior were recorded. Nomenclature and protection status of the species followed those documented in the AFCD website (www.hkbiodiversity.net), Wilson *et al.* (2004) and Tam *et al.* (2011). Adult Odonata survey was conducted along line transects in parallel with river channel within the works area where access was permitted.

3.4 Aquatic Macro-invertebrates

Macro-invertebrates in the river channel were surveyed. Sampling was conducted at five sampling locations including two sites located at the lower portion (T3 and T4) of the river channel and another two sites at the upper section (T1 and T2) of the river, as well as the reference site. Those sampling sites covered major type of river habitats, e.g. river pool and riffle (**Figure 1**). Five replicates were taken at each sampling point and pool together for further sample sorting and identification. Kick sampling and hand netting were the survey methodologies for river organisms. Dissection microscope and digital camera were used to aid identification and enumeration. Numerical abundance and species identity were recorded. Nomenclature and protection status of the species has followed those documented in the AFCD website (www.hkbiodiversity.net) and other literatures such as Dudgeon (1994).

3.5 Fish and Newt

Fish community and *Paramesotriton hongkongensis* at the specified river channel was monitored by live trapping, hand netting and direct observation methods.

Sampling was conducted at five sampling locations including two sites located at the lower portion (T3 and T4) of the river channel and another two sites at the upper section (T1 and T2) of the river, as well as reference site. Those sampling sites covered major type of river habitats, e.g. river pool and riffle (**Figure 1**). The number of the observed fish and newt was estimated and recorded. Nomenclature and protection status of the species followed those documented in the AFCD website (www.hkbiodiversity.net) and Lee *et al.* (2004).

3.6 Abiotic Data Collection

3.6.1 Water Quality Monitoring

Dissolved oxygen level, pH value, conductivity, salinity, BOD and nutrient level (nitrate and ammonium) were measured and analyzed by conventional methods in situ or in laboratory. The instruments for measuring dissolved oxygen level, pH value, conductivity, salinity were model: DO-5510, AZ8685, AZ8361 and AZ8374 respectively. All the instruments were calibrated every monitoring month according to the operation manuals in order to obtain the precise result. BOD test took 5 days to complete within darkness incubator with stable temperature at 20°C and was performed using model: DO-5510 for measuring dissolved oxygen. Nutrient levels including nitrate and ammonia were performed in laboratory by applying the In-house method SOP056 (FIA) and SOP057 (FIA) respectively.

3.6.2 Sediment Characteristics

Sediment/substrate characteristics were recorded of sediment cover in percentage e.g. mud, sand, rock, boulder and cemented bottom in the river bed at sampling sites.

3.6.3 Water Flow

Water flow rates in river channel were measured by recording the time taken for a floating object (e.g. floating ball) to cover a measured distance.

The sampling locations for surveys were presented in **Figure 1**.

4 Monitoring Results

4.1 Vegetation

Vegetation has generally covered the gabion and river bed along Lam Tsuen River (Photos 1-3). In total, 75 flora species were recorded within the survey transects along the river course. Some of the vegetation at river bed has been washed out by flooding, especially vegetation in lower section of the river in

previous month. The recorded floras were generally in good health, and the height of the dominated riparian grass and herb species were in a range from 0.2m to 1.5m as observed along survey transect. Dominant flora species were shown in the **Table 4.1** marked with relative abundance sign “+++”. Results of vegetation survey and belt transect survey were presented in **Table 4.1** and **Table 4.2**. **Figure 1** shows the transect line for the flora surveys.

4.2 Fauna

4.2.1 Avifauna

An avifauna survey was undertaken along survey transects and at four selected point count locations. In total, 23 species of birds were recorded during the bird survey and 6 of the total were wetland dependent species including *Egretta garzetta* (Photo 4), *Ardeola bacchus* (Photo 5), *Alcedo atthis*, *Motacilla alba* (Photo 6), *Tringa ochropus* (Photo 7) and *Motacilla cinerea*. They were commonly observed foraging in the river channel. *Pycnonotus jocosus* was a dominated species along the river. All the birds in Hong Kong are under protection of Wild Animals Protection Ordinance (Cap. 170). Among the recorded species, *Ardeola bacchus* and *Egretta garzetta* are classified as Regional Concern by Fellowes *et al.* (2002). *Centropus sinensis* was observed in the river, which is considered as Vulnerable in China Red Data Book. Apart from species mentioned above, the others recorded in Lam Tsuen River were common species in Hong Kong. Transect and Point Count locations were shown on **Figure 1**. Result of bird survey was presented in the **Table 4.3**.

4.2.2 Adult Odonata Survey

Odonata survey was performed, and a list of recorded odonata species at Upper Lam Tsuen River is shown in **Table 4.4**. In total, 4 odonata species were recorded during the survey and the recorded species were common species and widely distributed in Hong Kong. The result obtained this month is similar to previous surveys conducted in approximate period of last year. Species richness in this month increased in comparison with the record of last month. Most of the odonata species in Hong Kong has the peak emergence from spring to late summer. The increase in abundance of odonata was due to seasonality. It is expected that number of odonata will keep increasing during coming wet season (Wilson *et al.*, 2004 & Tam *et al.*, 2011). Sampling location was shown in **Figure 1**.

4.2.3 Aquatic Macro-invertebrates

Upper Lam Tsuen River was flowing with constant water during survey (Photo 8). The river benthic fauna collected was mainly comprised of insects, molluscs and crustaceans (Photo 10). *Pomacea canaliculata* was found abundant along the river. Details of recorded of river benthic fauna refers to **Table 4.5**. Sampling location was shown on **Figure 1**.

4.2.4 Hong Kong Newt

Surveys of Hong Kong Newt were conducted (Photo 8) at Upper Lam Tsuen River. Adult *Paramesotriton hongkongensis* (Photo 9) were observed at the Lam Tsuen River where the habitat consisted of riparian vegetation during the survey. It is assumed that Hong Kong Newt would stay in river habitat during breeding period from September to March (Dudgeon, 2003). Riparian vegetation grown along the channel especially along water margin could provide shelter and breeding habitat for Hong Kong Newt. Hong Kong Newt is listed in Wild Animals Protection Ordinance (Cap. 170) and classified as “Near Threatened” under IUCN Red List Status and as “Potential Global Concern” by Fellowes *et al.* (2002). Record of Hong Kong Newts can be referred to **Table 4.6**.

4.2.5 River Fish Fauna

Fish surveys were performed at Upper Lam Tsuen River during field monitoring. In total, 17 species of freshwater fish, including species recorded from reference site, were recorded. *Oreochromis niloticus*, *Zacco platypus* and *Rhinogobius* spp were the dominated species in the river. *Acrossocheilus parallens* is a rare freshwater fish that only recorded in few of reservoir catchments and streams in Hong Kong (Lee *et al.*, 2004) and listed as Global Concern by Fellowes (2002). It was observed along the surveyed river with pool. Except *Acrossocheilus parallens*, *Parazacco spilurus* is classified as Vulnerable in China Red Data Book and observed along the river with low abundance. Fish counting at 2 x 2 meter area were performed and number of fish individuals was similar to the record of last month with slight increase. Details of recorded of fish fauna refers to **Table 4.6**. Sampling location was shown on **Figure 1**.

4.3 **Abiotic Data**

Data on water quality and major river hydrological feature (water flow and substratum) of the river were collected and are presented in the **Table 4.7**.

Generally, the water was not polluted and nutrient levels were generally low. Results of water test were presented in the **Table 4.7**.

The river substratum was comprised of over 75-93% stones or rocks in most of the river sections with moderate water flow (up to 0.2m/second at pool and 0.5m/second at riffle).

5 **Summary and Commentary**

Post construction ecological monitoring was carried out March 2017 and relevant biotic and abiotic data was collected according to project specification and EM & A Manual. Benthic fauna was temporally de-faunated in river sections due to river bed engineering works during construction period between 2008 and early 2013 and is under recovery process after that period. Adult amphibian *Paramesotriton hongkongensis* was recorded at river channel where the river margin covered with riparian vegetation. *Acrossocheilus*

parallens, a rare freshwater fish species in Hong Kong, was observed at a few locations in the river channel with pool. In addition to *Acrossocheilus parallens*, *Parazacco spilurus* recorded in the river is also considered with conservation interest and observed along the river with low abundance.

Aquatic and riparian vegetation along river channel was re-established. Vegetation has generally covered the gabion and covered the river bed along Upper Lam Tsuen River.

The water quality of the surveyed river was not polluted although the river receives low concentration of nutrients from the nearby agriculture lands and resident houses.

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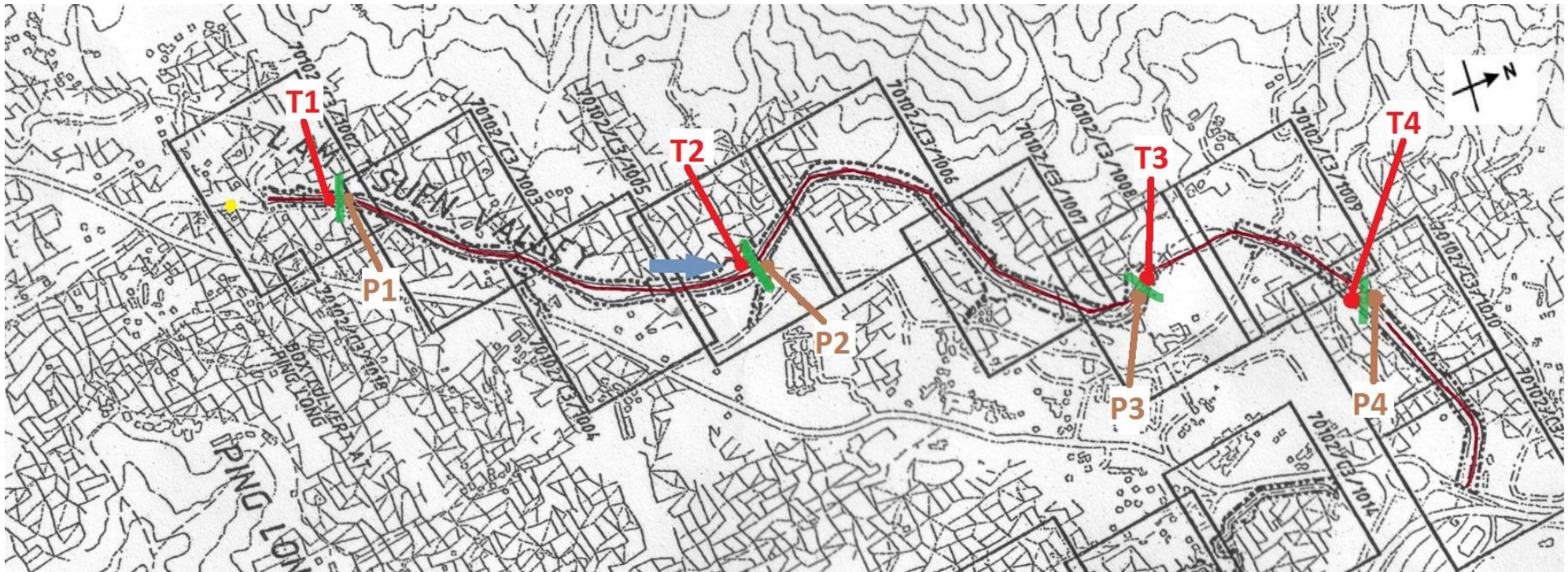
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FIGURES



Legend

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> — Belt transect -Vegetation -Sediment characteristics | <ul style="list-style-type: none"> ● Sampling station -Fish -Aquatic macroinvertebrate -Water quality and flow rate | <ul style="list-style-type: none"> ● Point count location -Avifauna |
| <ul style="list-style-type: none"> ● Reference sample | | <ul style="list-style-type: none"> — Line transect -Avifauna -Adult Odonate -Vegetation |

Figure1. Sampling Location of Ecological Survey and Monitoring at Upper Lam Tsuen River, Tai Po.

PHOTOS



Photo 1: General view of the river (Lower section)



Photo 2: General view of the river (Middle section)



Photo 3: General view of the river (Upper section)



Photo 4: Avifauna – *Egretta garzetta*



Photo 5: Avifauna – *Ardeola bacchus*



Photo 6: Avifauna – *Motacilla alba*



Photo 7: Avifauna – *Tringa ochropus*



Photo 8: Kick sampling

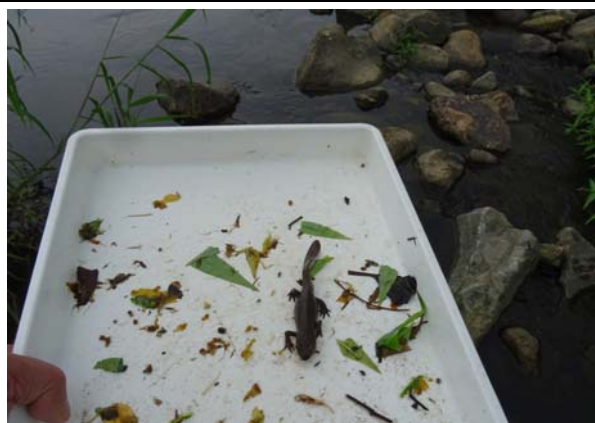


Photo 9: Hong Kong Newt



Photo 10: Aquatic sampling

TABLE

Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Baseline monitoring | | | | | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | | | | | | | |
|------------------|---------------------------------|--------------|---------------------|-----------|-----|-----------|--------|-----------|-----|-----------|-------------------|-----------|-----|-----------|-------------------|-----------|-----|-----------|-------------------|-----------|-----|-----------|-------------------|-----------|-----|-----------|-----|-----------|-----|-----|-----|----|----|
| | | | Jul-08 | | | | Aug-08 | | | | Jan-09 | | | | Jan-09 | | | | Jul-09 | | | | Jan-10 | | | | | | | | | | |
| | | | P1 | | P4 | | P1 | | P4 | | T1 | | T2 | | T3 | | T4 | | T1 | | T2 | | T3 | | T4 | | T1 | | T2 | | T3 | | T4 |
| Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | 0.4 | 40 | | | 0.4 | 40 | | | 0.4 | 30 | 0.5 | 5 | 1.5 | 5 | 1 | 15 | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | 0.5 | 30 | | | 0.5 | 30 | | | | | | | 0.2 | 5 | | | 0.5 | 50 | | | 0.5 | 20 | | | 0.5 | 5 | | 0.5 | 2 | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | 3 | 20 | | | 3 | 20 | | | | | | | | | | | | | | | | | | | | | | 2 | 5 | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | 1 | 10 | | | 1 | 10 | | | 0.5 | 2 | | | | | 0.3 | <1 | | | | | | | | | | | | 1 | 5 | | |
| Caesalpinjiaceae | <i>Cassia alata</i> | 翅荳豉明 | | | 1.2 | 10 | | | 1.2 | 10 | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | 6 | 10 | | | 6 | 10 | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | | 1.2 | 70 | | | 1.2 | 70 | 1.5 | 30 | | | | | | | 0.5 | 20 | | | 1.2 | 5 | 1 | 40 | 0.8 | 40 | 0.9 | 50 | 1 | 15 | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | 1.5 | 5 | | | | | | | 1.5 | 5 | 4 | 5 | | | | | | | 4 | 5 | 0.5 | 30 | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | | | | | | | | | 0.4 | 20 | | | | | 0.5 | 1 | 0.5 | 5 | 0.3 | 15 | 0.5 | 30 | | | | 0.5 | 30 | 0.3 | 25 | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | 3 | 5 | | | | | | | 1.5 | 5 | | | | | | | | 0.5 | 2 | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | 6 | 10 | | | 6 | 10 | | | | | | | 4 | 10 | | | | | | | 6 | 50 | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | 0.05 | 5 | | | 2 | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0.3 | 5 | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | | | | | | | | 0.5 | 5 | | | | | | | | | | | | 0.4 | 50 | | | | 0.3 | 5 | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1.5 | 2 | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 30 | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | 1.2 | 2 | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | 3 | 5 | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 鄉銀菊 | | | | | | | | | | | | | | | 0.2 | 10 | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Gound | | | | | | | | | | | 13 | | 85 | | 85 | | 64 | | 20 | | 80 | | 38 | | 10 | | 50 | | 10 | | 43 | | 24 |

P1 – Point count location 1; P4 – Point count location 4

Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Impact monitoring | | | | | | | | Impact monitoring | | | | | | | | Impact monitoring | | | | | | | | Impact monitoring | | | | | | | | | | | | | | | | |
|------------------|---------------------------------|--------------|-------------------|-----|-----|-----|--------|----|-----|-----|-------------------|-----|----|-----|--------|-----|----|-----|-------------------|-----|----|-----|--------|-----|----|-----|-------------------|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|---|
| | | | Jul-10 | | | | Jul-10 | | | | Jan-11 | | | | Jul-11 | | | | Jan-12 | | | | Jul-12 | | | | | | | | | | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | 0.8 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | 0.5 | 5 | | | | | | | | | | | | | 0.3 | 10 | | | | | | | | 0.3 | 5 | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | 1.2 | 10 | | | | | | | | 1.2 | 2 | 2.5 | 10 | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | 1 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caesalpiniaceae | <i>Cassia alata</i> | 翅荳豉明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 0.8 | 20 | 0.9 | 30 | 1 | 60 | 1.5 | 30 | 0.8 | 5 | | | 1 | 30 | 1 | 15 | 0.8 | 10 | 1 | 5 | | | | | 0.8 | 10 | 1 | 5 | 1.5 | 20 | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | 4 | 5 | | | | | | | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | | 0.5 | 20 | 0.3 | 5 | | | 0.4 | 10 | 0.5 | 5 | 0.3 | 5 | 0.4 | 8 | 0.4 | 5 | 0.5 | 3 | | | 0.4 | 2 | 0.4 | 5 | 0.5 | 3 | | 0.4 | 2 | 0.4 | 5 | 0.5 | 3 | 0.5 | 15 | 0.4 | 1 | | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.4 | 20 | | | | | | 0.5 | 10 | 0.4 | 10 | 0.4 | 20 | 0.5 | 5 | | | 0.4 | 2 | 0.4 | 5 | 0.5 | 2 | 0.5 | 10 | 0.4 | 2 | 0.4 | 5 | 0.5 | 2 | 0.5 | 10 | 0.4 | 5 | 0.4 | 5 | 0.5 | 5 | 0.5 | 2 |
| Poaceae | <i>Coix lacryma-jobi</i> | 慈苳 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | 1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 錦銀菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | | | | | 0.5 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Gound | | | | 60 | | 45 | | 20 | | 30 | | 75 | | 65 | | 45 | | 54 | | 73 | | 85 | | 65 | | 88 | | 73 | | 82 | | 28 | | 88 | | 75 | | 82 | | 58 | | 92 | |

P1 – Point count location 1; P4 – Point count location 4

Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1 - located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Impact monitoring | | | | | | | | Impact monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | |
|------------------|---------------------------------|--------------|-------------------|-----|-----|----|--------|-----|-----|----|-------------------|----|-----|-----|--------|----|-----|----|------------------------------|----|-----|----|-----|----|-----|-----|------------------------------|----|-----|---|-----|----|-----|----|------------------------------|----|-----|----|-----|----|-----|-----|---|
| | | | Aug-13 | | | | Dec-13 | | | | Jan-14 | | | | Feb-14 | | | | Mar-14 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | 0.3 | 15 | 0.3 | 5 | | 0.3 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | 1.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caesalpiniaceae | <i>Cassia alata</i> | 翅荳豨明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 0.8 | 5 | 0.8 | 5 | 1 | 10 | 1 | 15 | 0.8 | 10 | 0.8 | 10 | | | | | 0.8 | 10 | 0.8 | 10 | | | | | | | | | | | | | 1 | 13 | 1 | 13 | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | 0.5 | 25 | 0.5 | 10 | 0.5 | 10 | 0.4 | 3 | 0.5 | 10 | 0.5 | 5 | 0.5 | 10 | 0.4 | 10 | 0.5 | 10 | 0.5 | 5 | 0.5 | 10 | 0.4 | 10 | 0.5 | 10 | 0.5 | 5 | 0.5 | 10 | 0.4 | 10 | 0.5 | 10 | 0.5 | 5 | 0.5 | 10 | 0.4 | 10 | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | 0.8 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.4 | 5 | 0.4 | 20 | 0.5 | 10 | 0.5 | 2 | 0.4 | 5 | | | 0.5 | 10 | | | 0.4 | 5 | | | 0.5 | 10 | | | 0.4 | 5 | | | 0.5 | 10 | | | 0.4 | 5 | | | 0.5 | 10 | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 鄉銀菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | | | | | | | | | | | 0.3 | 5 | | | | | | | | | | | | 0.3 | 5 | | | | | | | | | | | | | | | 0.3 | 5 |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | 1.2 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | | | | | | | | 1 | 2 | | | | | | | | | | | | 1 | 2 | | | | | | | | | | | | | | | 1 | 2 |
| Bare Gound | | | | 50 | | 55 | | 68 | | 70 | | | | 75 | | 85 | | 73 | | 75 | | | | | | | 75 | | 75 | | | | | | | | | | | | | | |

P1 - Point count location 1; P4 - Point count location 4

Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1 - located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Stream Transect | Family | Species | Chinese name | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | | | | | | | |
|--------------------|---------------------------------|---------|--------------|------------------------------|-----|-----|-----|--------|-----|-----|-----|------------------------------|-----|-----|-----|--------|-----|----|-----|------------------------------|-----|-----|-----|--------|-----|-----|-----|------------------------------|-----|-----|-----|-----|-----|-----|-----|------------------------------|-----|-----|-----|-----|-----|----|-----|----|--|----|--|----|--|----|
| | | | | Apr-14 | | | | May-14 | | | | Jun-14 | | | | Jul-14 | | | | Aug-14 | | | | Sep-14 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | 0.3 | 2 | | | | | 0.3 | 2 | | | | | 0.3 | 2 | | | | | 0.5 | 4 | | | | | 0.7 | 5 | | | | | 0.7 | 5 | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | 0.3 | 5 | 0.3 | 5 | | | | | | | | | 0.3 | 5 | 0.3 | 5 | | | | | | | 0.3 | 5 | 0.3 | 5 | | | 0.3 | 5 | 0.3 | 5 | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caesalpinjiaceae | <i>Cassia alata</i> | 翅荑決明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 0.5 | 5 | 0.6 | 10 | | 0.6 | 10 | 0.5 | 5 | 0.6 | 6 | | 0.6 | 6 | 0.5 | 5 | 0.6 | 8 | | 0.6 | 6 | 0.6 | 10 | 0.8 | 10 | | 0.8 | 6 | 0.6 | 10 | 0.8 | 12 | | 0.8 | 8 | 0.6 | 10 | 0.8 | 12 | | 0.8 | 8 | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 撒甘菊 | | 0.3 | 5 | 0.3 | 15 | 0.3 | 5 | | | 0.3 | 5 | 0.3 | 15 | 0.3 | 5 | | | 0.3 | 6 | 0.3 | 15 | 0.3 | 8 | | 0.3 | 6 | 0.3 | 15 | 0.3 | 8 | | 0.3 | 8 | 0.3 | 15 | 0.3 | 10 | | | | | | | | | | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.5 | 20 | 0.5 | 10 | 0.7 | 15 | 0.6 | 10 | 0.5 | 20 | 0.5 | 10 | 0.7 | 15 | 0.6 | 10 | 0.5 | 20 | 0.5 | 10 | 0.7 | 15 | 0.6 | 10 | 0.5 | 20 | 0.6 | 12 | 0.7 | 15 | 0.6 | 10 | 0.5 | 20 | 0.6 | 12 | 0.7 | 15 | 0.6 | 10 | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 鄉銀菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | 0.2 | 10 | | | 0.3 | 3 | | | 0.2 | 8 | | | 0.2 | 8 | | | 0.3 | 3 | | | 0.2 | 8 | | 0.3 | 10 | | 0.3 | 5 | | 0.3 | 10 | | 0.3 | 5 | | | | | | | | | | | | | | |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | 0.2 | 5 | 0.2 | 50 | 0.2 | 5 | | | 0.2 | 2 | 0.2 | 2 | 0.2 | 1 | | | 0.2 | 2 | 0.2 | 2 | 0.2 | 1 | | 0.3 | 1 | 0.3 | 1 | 0.3 | 1 | 0.3 | 1 | | 0.3 | 1 | 0.3 | 2 | 0.3 | 1 | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Gound | | | | 63 | | 70 | | 12 | | 65 | | 65 | | 77 | | 60 | | 73 | | 65 | | 74 | | 60 | | 70 | | 58 | | 71 | | 58 | | 70 | | 55 | | 69 | | 59 | | 68 | | 55 | | 67 | | 58 | | 66 |

P1 – Point count location 1; P4 – Point count location 4

Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | |
|------------------|---------------------------------|--------------|------------------------------|----|-----|-----|--------|-----|-----|----|------------------------------|-----|-----|-----|--------|-----|-----|----|------------------------------|----|-----|----|--------|----|-----|----|------------------------------|----|-----|----|-----|----|-----|----|------------------------------|----|-----|----|-----|----|-----|----|------------------------------|--|--|--|--|--|--|--|
| | | | Oct-14 | | | | Nov-14 | | | | Dec-14 | | | | Jan-15 | | | | Feb-15 | | | | Mar-15 | | | | Apr-15 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | 0.6 | 10 | | | | | 0.6 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | 0.6 | 10 | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | 3 | 15 | | | | | 3 | 15 | | | | | | | | | 3 | 15 | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | 1.8 | 1 | | | | | 1.8 | 1 | | | | | | | | | | | | | | | | 1.8 | 1 | | | | | | | | | 1.8 | 1 | | | | | | | | | | |
| Caesalpiniaceae | <i>Cassia alata</i> | 翅荚决明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 1 | 10 | 1.5 | 15 | 1.3 | 30 | 1 | 5 | 1 | 10 | 1.5 | 15 | 1.3 | 30 | 1 | 5 | 1 | 10 | 1.5 | 15 | 1.3 | 30 | 1 | 5 | 1 | 10 | 1.5 | 15 | 1.3 | 30 | 1 | 5 | 1 | 10 | 1.5 | 15 | 1.3 | 30 | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 撒甘菊 | 0.3 | 15 | 0.3 | 15 | 0.3 | 15 | 0.3 | 15 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | 0.3 | 18 | | | | | | | | | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.5 | 5 | 0.8 | 12 | 0.7 | 10 | | | 0.5 | 5 | 0.8 | 12 | 0.7 | 10 | | | 1 | 10 | 0.4 | 15 | 1 | 15 | | | 1 | 10 | 0.7 | 15 | 1 | 15 | | | 1 | 10 | 0.7 | 15 | 1 | 15 | | | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | 2 | 5 | | | | | | | 2 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 鄉銀菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | 0.3 | 10 | 0.8 | 20 | | | 0.3 | 20 | 0.3 | 12 | 0.8 | 22 | | | 0.3 | 20 | 0.3 | 12 | 0.8 | 22 | | | 0.3 | 20 | 0.4 | 10 | 0.4 | 20 | | | 0.3 | 20 | 0.5 | 10 | 0.5 | 20 | | | 0.3 | 20 | | | | | | | | |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | 0.3 | 2 | 0.1 | 1 | | | | | 0.3 | 2 | 0.1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | 2 | 30 | 2 | 15 | 2 | 10 | 1.8 | 5 | 2 | 25 | 2 | 13 | 2 | 10 | 1.8 | 5 | 2 | 25 | 2 | 13 | 2 | 10 | 1.8 | 5 | 2 | 30 | 2 | 10 | 2 | 5 | 1.8 | 5 | 2 | 30 | 2 | 10 | 2 | 5 | 1.8 | 5 | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | 1.5 | 15 | | | | | | | 1.5 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Gound | | | | 25 | | 23 | | 18 | | 43 | | 25 | | 20 | | 15 | | 40 | | 25 | | 20 | | 15 | | 40 | | 20 | | 20 | | 30 | | 19 | | 20 | | 20 | | 30 | | 19 | | | | | | | | |

P1 - Point count location 1; P4 - Point count location 4

Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | | | | | | |
|------------------|---------------------------------|--------------|------------------------------|----|-----|-----|--------|-----|-----|-----|------------------------------|-----|-----|----|--------|----|-----|----|------------------------------|----|-----|----|-----|-----|-----|----|------------------------------|----|-----|----|-----|----|-----|-----|-----|---|--|-----|---|--|
| | | | May-15 | | | | Jun-15 | | | | Jul-15 | | | | Aug-15 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | 0.3 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | 2 | 15 | | | | | | 2 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | 0.8 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caesalpiniaceae | <i>Cassia alata</i> | 翅荳豉明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 0.9 | 15 | 1 | 18 | 0.8 | 20 | 1 | 10 | 0.9 | 15 | 1 | 18 | 0.8 | 20 | 1 | 10 | 0.9 | 30 | 1.5 | 30 | 0.5 | 70 | 1 | 15 | 1 | 30 | 1.5 | 30 | 0.8 | 70 | 1 | 15 | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | 0.3 | 5 | 0.4 | 10 | 0.3 | 5 | 0.3 | 10 | 0.3 | 5 | 0.4 | 10 | 0.3 | 5 | 0.3 | 10 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | | | | | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.8 | 5 | 0.7 | 10 | 0.8 | 15 | | | 0.8 | 5 | 0.7 | 10 | 0.8 | 15 | | | | | | | | | 0.3 | 5 | | | | | | | | | 0.4 | 5 | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | 0.6 | 2 | | | | | | | | | 0.6 | 2 | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 鄉銀菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | 0.5 | 5 | 0.4 | 10 | | 0.3 | 10 | 0.5 | 5 | 0.4 | 10 | | 0.3 | 10 | 0.3 | 20 | 0.2 | 10 | | | | | | | 0.4 | 20 | 0.2 | 10 | | | | | | | | | | |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | 1.2 | 10 | 1.1 | 5 | 1.4 | 5 | 1.3 | 5 | 1.2 | 10 | 1.1 | 5 | 1.4 | 5 | 1.3 | 5 | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | 0.5 | 5 | | | 2 | 5 | | | | | | | | | 0.8 | 5 | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Gound | | | | 60 | | 47 | | 40 | | 59 | | 60 | | 47 | | 40 | | 59 | | 15 | | 35 | | 13 | | 55 | | 15 | | 35 | | 13 | | 55 | | | | 55 | | |

P1 – Point count location 1; P4 – Point count location 4

(Continous) Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | |
|------------------|---------------------------------|--------------|------------------------------|----|-----------|----|-----------|----|-----------|-----|------------------------------|----|-----------|----|-----------|-----|-----------|----|------------------------------|----|-----------|----|-----------|-----|-----|-----|------------------------------|----|--|----|--|----|--|----|
| | | | Stream | | Sep-15 | | | | Oct-15 | | | | Nov-15 | | | | Dec-15 | | | | | | | | | | | | | | | | | |
| | | | Transect | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | |
| | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | 0.5 | 10 | | | | | 0.4 | 5 | 0.5 | 10 | | | | | 0.4 | 5 | 0.5 | 10 | | | | | 0.4 | 5 | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caesalpiniaceae | <i>Cassia alata</i> | 翅莢決明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 1.1 | 30 | 1.5 | 35 | 1 | 70 | 1.2 | 15 | 0.7 | 5 | 1.5 | 30 | 1 | 60 | 1.2 | 15 | 0.7 | 5 | 1.5 | 35 | 1 | 60 | 1.2 | 20 | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | | | | | | | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | | | 0.4 | 5 | | | | | 0.4 | 10 | | | | | | | | | | | 0.4 | 10 | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | 1 | 5 | | | | | 1 | 5 | | | | | | | 1 | 5 | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | 0.6 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | 1 | 10 | | | | | 1 | 10 | | | | | | | 1 | 10 | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蟛蜞菊 | 0.4 | 20 | 0.2 | 10 | | | | 0.4 | 5 | | | | | 0.4 | 5 | | | | | | | 0.4 | 5 | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | 0.3 | 20 | 0.2 | 20 | 0.2 | 5 | 0.4 | 20 | 0.3 | 10 | 0.2 | 20 | 0.2 | 5 | 0.4 | 20 | 0.3 | 10 | 0.2 | 20 | 0.2 | 5 | 0.4 | 25 | | | | | | | | |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | 0.2 | 10 | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | 0.8 | 5 | 2 | 5 | | | | | 1.5 | 10 | | | | | 1.5 | 10 | | | 2 | 5 | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | | | | | | | | 0.4 | 5 | | | | | | | 0.4 | 5 | | | | 0.4 | 5 | | | | | | | |
| Acanthaceae | <i>Dicliptera chinensis</i> | 狗肝菜 | | | | | | | | 0.3 | 20 | | | | | 0.3 | 20 | | | | | | | 0.3 | 20 | | | | | | | | | |
| Bare Gound | | | | 15 | | 30 | | 13 | | 55 | | 30 | | 45 | | 20 | | 55 | | 30 | | 40 | | 20 | | 45 | | 30 | | 40 | | 20 | | 35 |

P1 – Point count location 1; P4 – Point count location 4

(Continuus) Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | |
|------------------|---------------------------------|--------------|------------------------------|----|-----|-----|--------|-----|-----|-----|--------|----|-----|----|------------------------------|----|-----|----|--------|----|-----|----|-----|----|-----|----|------------------------------|----|-----|----|-----|----|-----|----|-----|---|-----|----|------------------------------|----|-----|----|--|--|--|--|--|--|--|--|------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| | | | Jan-16 | | | | Feb-16 | | | | Mar-16 | | | | Apr-16 | | | | May-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | 0.5 | 10 | | | | 0.4 | 5 | 0.5 | 10 | | | | | | | | | | | | | | | | 0.4 | 5 | 0.5 | 5 | | | | | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caesalpiniaceae | <i>Cassia alata</i> | 翅荚决明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Bracharia mutica</i> | 巴拉草 | 0.3 | 5 | 0.3 | 20 | 0.3 | 30 | 0.3 | 10 | 0.3 | 5 | 0.3 | 20 | 0.3 | 30 | 0.3 | 10 | 0.4 | 10 | 0.4 | 25 | 0.4 | 35 | 0.4 | 15 | 0.4 | 8 | 0.4 | 25 | 0.4 | 35 | 0.4 | 10 | 0.4 | 7 | 0.4 | 20 | 0.4 | 25 | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | | 0.4 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | 1 | 5 | | | | | | 1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | 1 | 10 | | | | | | 1 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蟛蜞菊 | 0.4 | 5 | | | | | | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | 0.3 | 10 | 0.2 | 20 | 0.2 | 5 | 0.4 | 25 | 0.3 | 10 | 0.2 | 20 | 0.2 | 5 | 0.4 | 25 | 0.3 | 10 | 0.2 | 20 | 0.2 | 5 | 0.4 | 25 | 0.3 | 8 | 0.2 | 20 | 0.2 | 5 | 0.4 | 20 | 0.3 | 7 | 0.2 | 15 | 0.2 | 5 | 0.4 | 15 | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Erechites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | 0.2 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | 1.5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acanthaceae | <i>Dicliptera chinensis</i> | 狗仔菜 | 0.3 | 20 | | | | | | 0.3 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Gound | | | 30 | | | 55 | | 50 | 45 | | | 30 | | 55 | | 50 | 45 | | | 30 | | 25 | | 50 | | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

P1 - Point count location 1; P4 - Point count location 4

(Continous) Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|---------------------------------|--------------|------------------------------|----|-----------|----|------------------------------|-----|-----------|-----|------------------------------|----|-----------|----|------------------------------|-----|-----------|-----|------------------------------|----|-----------|----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----|----|-----|----|-----|----|-----|-----|-----|----|-----|----|
| | | | Jun-16 | | | | Jul-16 | | | | Aug-16 | | | | Sep-16 | | | | Oct-16 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | | | | | | | | | | | | | | | | | | | | |
| | | | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | 0.5 | 5 | | | | 0.4 | 5 | 0.5 | 5 | | | | | 0.4 | 5 | 0.5 | 5 | | | | | 0.4 | 5 | 0.5 | 5 | | | 0.4 | 5 | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caesalpinaceae | <i>Cassia alata</i> | 翅莢決明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 0.4 | 7 | 0.4 | 20 | 0.4 | 25 | 0.4 | 5 | 0.4 | 7 | 0.4 | 15 | 0.4 | 20 | 0.4 | 5 | 0.4 | 7 | 0.4 | 15 | 0.4 | 20 | 0.4 | 5 | 0.5 | 10 | 0.5 | 20 | 0.5 | 25 | 0.5 | 5 | 0.5 | 10 | 0.5 | 20 | 0.5 | 25 | 0.5 | 5 |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.3 | 5 | 0.3 | 5 | 0.4 | 5 | 0.4 | 5 | 0.4 | 5 | 0.4 | 10 | 0.4 | 5 | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | 0.4 | 5 | | | | | | | 0.4 | 5 | | | | | | | | | | | | | | 0.3 | 5 | 0.4 | 5 | | | | 0.5 | 5 | 0.4 | 5 | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | 1 | 5 | | | | | | 1 | 5 | | | | | | | | | | | | | | | | | 1 | 5 | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | 1 | 7 | | | | | | 1 | 7 | | | | | | | | | | | | | | | | | 1 | 7 | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蟛蜞菊 | 0.4 | 5 | | | | | | 0.4 | 5 | | | | | | | | | | | | | | | | | 0.4 | 5 | | | | | | | | | | | | | |
| Comelinaceae | <i>Commelina diffusa</i> | 節節草 | 0.3 | 7 | 0.2 | 15 | 0.2 | 5 | 0.4 | 15 | 0.3 | 7 | 0.2 | 10 | 0.2 | 5 | 0.4 | 10 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | 0.2 | 5 | | | | | | | | 0.2 | 5 | | | | | | | | | | | 0.2 | 5 | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | 1.5 | 10 | | | | | | | 1.5 | 10 | | | | | | | | | | | | | | 1.5 | 10 | | | | | | | | | 1.5 | 10 | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | 0.4 | 5 | | | | | | | 0.4 | 5 | | | | | | | | | | | | | 0.4 | 5 | | | | | | | | | | 0.4 | 5 | | | |
| Acanthaceae | <i>Dicliptera chinensis</i> | 狗肝菜 | 0.3 | 5 | | | | | | 0.3 | 5 | | | | | | | | | | | | | | | | | 0.3 | 5 | | | | | | | | | 0.3 | 5 | | | |
| Bare Gound | | | | 54 | | 60 | | 60 | | 65 | | 54 | | 70 | | 65 | | 70 | | 51 | | 65 | | 60 | | 65 | | 43 | | 50 | | 45 | | 60 | | 43 | | 50 | | 45 | | 65 |

P1 – Point count location 1; P4 – Point count location 4

(Continuous) Table 4.2. Flora species recorded from belt transect survey at the Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Family | Species | Chinese name | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | | | |
|------------------|---------------------------------|--------------|------------------------------|----|-----------|----|-----------|----|-----------|-----|-----------|-----|-----------|----|------------------------------|----|-----------|----|-----------|----|-----------|----|-----------|----|-----------|----|------------------------------|-----|-----------|-----|-----------|----|-----------|----|-----------|----|-----------|----|------------------------------|----|-----|----|-----|----|----|--|--|----|--|--|------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| | | | Nov-16 | | | | | | | | | | | | Dec-16 | | | | | | | | | | | | Jan-17 | | | | | | | | | | | | Feb-17 | | | | | | | | | | | | Mar-17 | | | | | | | | | | | |
| | | | T1 | | | T2 | | | T3 | | | T4 | | | T1 | | | T2 | | | T3 | | | T4 | | | T1 | | | T2 | | | T3 | | | T4 | | | T1 | | | T2 | | | T3 | | | T4 | | | | | | | | | | | | | | |
| | | | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | 0.5 | 5 | | | | | | 0.4 | 5 | 0.5 | 5 | | | | | | | | | | | | | | | 0.4 | 5 | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | 0.4 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.4 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.4 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.4 | 5 | 0.2 | 5 | 0.3 | 5 | 0.4 | 5 | 0.4 | 5 | 0.2 | 10 | 0.3 | 10 | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | |
| Caesalpiniaceae | <i>Cassia alata</i> | 翅莢決明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Magnoliaceae | <i>Michelia alba</i> | 白蘭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 0.5 | 10 | 0.5 | 20 | 0.5 | 25 | 0.5 | 5 | 0.5 | 10 | 0.5 | 20 | 0.5 | 25 | 0.5 | 5 | 0.5 | 10 | 0.5 | 20 | 0.5 | 25 | 0.5 | 5 | 0.5 | 10 | 0.5 | 20 | 0.6 | 25 | 0.5 | 5 | 0.6 | 10 | 0.6 | 25 | 0.6 | 25 | 0.6 | 10 | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | 0.4 | 5 | 0.4 | 5 | 0.4 | 10 | 0.4 | 5 | 0.4 | 5 | 0.4 | 5 | 0.4 | 10 | 0.4 | 5 | 0.4 | 5 | 0.4 | 5 | 0.4 | 10 | 0.4 | 5 | 0.4 | 5 | 0.5 | 5 | 0.5 | 10 | 0.5 | 5 | 0.4 | 5 | 0.5 | 5 | 0.5 | 10 | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes L.</i> | 大漂 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | 0.5 | 5 | 0.4 | 5 | | | | | 0.5 | 5 | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | 0.5 | 10 | 0.4 | 10 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | 1.1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus flabelliformis</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | 1.1 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蟛蜞菊 | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 節節草 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 | 0.3 | 10 | 0.2 | 15 | 0.2 | 10 | 0.4 | 15 | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Erechtites hieracifolia</i> | 革命菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Pharbitis nil</i> | 牽牛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | 1.5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | | | | | 0.4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acanthaceae | <i>Dicliptera chinensis</i> | 狗肝菜 | 0.3 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Gound | | | | 43 | | 50 | | 45 | | 65 | | 43 | | 50 | | 45 | | 65 | | 43 | | 50 | | 45 | | 65 | | 43 | | 50 | | 45 | | 65 | | 43 | | 50 | | 45 | | 60 | | | | | | | | | | | | | | | | | | | | |

P1 – Point count location 1; P4 – Point count location 4

Table 4.4. Odonate species recorded at the Upper Lam Tsuen River

| Species name | Common name | Chinese name | Status | Commonness | Post construction monitoring | | | | | | Post construction monitoring | | | | | | | | | |
|---|---------------------------|--------------|--------|------------|------------------------------|--------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|--------|--------|--------|---|---|
| | | | | | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 | Jul-15 | Aug-15 | Sep-15 | | |
| <i>Acisoma panorpoides panorpoides</i> | Asian Pintail | 雉腹蜻 | NP | VC | | | | | | | | | | | | | | + | | |
| <i>Brachythemis contaminata</i> | Asian Amberwing | 黃翅蜻 | NP | VC | | | | | | | | | | | | | | | | |
| <i>Ceriatrigon auraticum ryukyuanum</i> | Orange-tailed Sprite | 琉球橘黃蟴 | NP | VC | + | + | + | + | | | + | | | + | + | + | + | + | + | + |
| <i>Coeliccia cyanomelas</i> | Blue Forest Damsel | 黃紋長腹蟴 | NP | VC | | | | | | | | | | | | | | | | |
| <i>Coperia marginipes</i> | Yellow Featherlegs | 黃狹扇蟴 | NP | VC | + | + | + | | | | | | | + | + | + | + | + | + | + |
| <i>Crocothemis servilia servilia</i> | Crimson Darter | 紅蜻 | NP | VC | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Euphaea decorata</i> | Black-banded Gossamerwing | 方帶幽蟴 | NP | VC | | | | | | | | | | | | | | | | + |
| <i>Ictinogomphus pertinax</i> | Common Flangetail | 霸王葉春蜓 | NP | C | | | | | | | | | | | + | + | + | + | + | + |
| <i>Ischnura senegalensis</i> | Common Blue Jewel | 褐斑異痣蟴 | NP | VC | | | | | | | | | | | | | | | | |
| <i>Mnais lacteola</i> | Indochinese Copperwing | 煙翅綠色蟴 | P, LC | C | | | | | | | | | | | | | | | | |
| <i>Nannophya pygmaea</i> | Scarlet Dwarf | 侏紅小蜻 | P, LC | C | | | | | | | | | | | | | | | | |
| <i>Neurobasis chinensis</i> | Chinese Greenwing | 華艷色蟴 | NP | VC | + | + | + | + | + | | | | + | + | + | + | + | + | + | + |
| <i>Neurothemis fulvia</i> | Russet Percher | 網脈蜻 | NP | VC | + | + | + | | | | | | | + | + | + | + | + | + | + |
| <i>Neurothemis tullia tullia</i> | Pied Percher | 截斑脈蜻 | NP | C | + | | | | | | | | | | | | | | | |
| <i>Orthetrum chrysis</i> | Red-faced Skimmer | 華麗灰蜻 | NP | VC | | | | | | | | | | | | | | | | + |
| <i>Orthetrum glaucum</i> | Common blue skimmer | 黑尾灰蜻 | NP | VC | + | | | | | | | | | + | | | | | | |
| <i>Orthetrum luzonicum</i> | Marsh Skimmer | 呂宋灰蜻 | NP | VC | | | | | | | | | | | | | | | | + |
| <i>Orthetrum pruinosum neglectum</i> | Common Red Skimmer | 赤褐灰蜻 | NP | VC | + | + | + | | | | | | | | + | + | + | + | + | |
| <i>Orthetrum sabina sabina</i> | Green Skimmer | 狹腹灰蜻 | NP | VC | + | | | | | | | | | | | | | | | |
| <i>Pantala flavescens</i> | Wandering Glider | 黃蜻 | NP | VC | | | + | + | + | | | | + | + | + | + | + | + | + | + |
| <i>Paracercion calamorum duyerei</i> | Dusky Lilysquatter | 葦尾蟴 | P, LC | C | | | | | | | | | | | | | | | | |
| <i>Prodasineura autumnalis</i> | Black Threadtail | 烏齒原蟴 | NP | VC | + | + | + | | | | | | | + | + | + | + | + | + | + |
| <i>Pseudagrion rubriceps rubriceps</i> | Orange-faced Sprite | 丹頂斑蟴 | NP | UC | + | + | + | + | | | | | | | + | + | | | | |
| <i>Rhinocypha perforata perforata</i> | Common Blue Jewel | 三斑鼻蟴 | NP | VC | + | + | + | + | | | | | | | | + | + | + | + | + |
| <i>Rhyothemis variegata arria</i> | Variiegated Flutterer | 斑麗翅蜻 | NP | C | + | + | + | + | | | | | | | | | | | | |
| <i>Trithemis aurora</i> | Crimson Dropwing | 曉褐蜻 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Trithemis festiva</i> | Indigo Dropwing | 慶褐蜻 | NP | VC | + | + | + | + | | | | | | | + | + | + | + | + | + |
| <i>Zygonyx iris insignis</i> | Emerald Cascader | 彩虹蜻 | P,PGC | VC | | | | | | | | | | | | | | | | |
| No. of species | | | | | 15 | 11 | 13 | 9 | 4 | 3 | 2 | 4 | 9 | 11 | 13 | 14 | 15 | 13 | | |

Note: NP – Not protected in Hong Kong; P-Protection in Hong Kong

“VC” – Very Common; “UC” – Uncommon; “C” – Common

“+” – Species exists in the study area

“++” – Species common in the study area

“+++” – Species abundant/dominant in study area

Commonness and status were decided according to AFCD biodiversity website (www.hkbiobiodiversity.net)LC- Local Concern - Fellowes *et al* (2002)PGC - Potential Global Concern - Fellowes *et al* (2002)

Table 4.4. Odonate species recorded at the Upper Lam Tsuen River

| Species name | Common name | Chinese name | Status | Commonness | Post construction monitoring | | | | | | | | | | | | | | | | | |
|--|---------------------------|--------------|--------|------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 |
| <i>Acisoma panorpoides panorpoides</i> | Asian Pintail | 錐腹蜻 | NP | VC | | | | | | | | | | | | | | | | | | |
| <i>Brachythemis contaminata</i> | Asian Amberwing | 黃翅蜻 | NP | VC | | | | | | | | | | | | | | | | | | |
| <i>Ceragrion auranticum ryukyuanum</i> | Orange-tailed Sprite | 琉球橘黃蟳 | NP | VC | | | | | | | | + | + | + | + | + | + | | | | | |
| <i>Coeliccia cyanomelas</i> | Blue Forest Damsel | 黃紋長腹蟳 | NP | VC | | | | | | | | | | | | | | | | | | |
| <i>Copera marginipes</i> | Yellow Featherlegs | 黃狹扇蟳 | NP | VC | | | | | | | | | + | + | + | + | + | | | | | |
| <i>Crocothemis servilia servilia</i> | Crimson Darter | 紅蜻 | NP | VC | + | + | | | | | | | | + | + | + | + | + | + | | | |
| <i>Euphaea decorata</i> | Black-banded Gossamerwing | 方帶幽蟳 | NP | VC | | | | | | | | | | + | + | + | | | | | | |
| <i>Ictinogomphus pertinax</i> | Common Flangetail | 霸王葉春蜓 | NP | C | + | | | | | | | | + | + | + | + | + | | | | | |
| <i>Ischnura senegalensis</i> | Common Blue Jewel | 褐斑異痣蟳 | NP | VC | | | | | | | | | | | | | | | | | | |
| <i>Mnais lacteola</i> | Indochinese Copperwing | 煙翅綠色蟳 | P, LC | C | | | | | | | | | | | | | | | | | | |
| <i>Nannophya pygmaea</i> | Scarlet Dwarf | 侏紅小蜻 | P, LC | C | | | | | | | | | | | | | | | | | | |
| <i>Neurobasis chinensis</i> | Chinese Greenwing | 華麗色蟳 | NP | VC | + | + | | | | | | | + | + | + | + | + | + | | | | |
| <i>Neurothemis fulvia</i> | Russet Percher | 網脈蜻 | NP | VC | | | | | | | | | | | + | + | + | + | + | | | |
| <i>Neurothemis tullia tullia</i> | Pied Percher | 截斑脈蜻 | NP | C | | | | | | | | | | | + | + | + | + | | | | |
| <i>Orthetrum chrysis</i> | Red-faced Skimmer | 華麗灰蜻 | NP | VC | + | + | | | | + | + | + | + | + | + | + | + | + | + | | | + |
| <i>Orthetrum glaucum</i> | Common blue skimmer | 黑尾灰蜻 | NP | VC | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum luzonicum</i> | Marsh Skimmer | 呂宋灰蜻 | NP | VC | + | | | | | | | | | | + | + | + | + | + | | | |
| <i>Orthetrum pruinosum neglectum</i> | Common Red Skimmer | 赤褐灰蜻 | NP | VC | | | | + | | | | | + | + | | | | | | | | |
| <i>Orthetrum sabina sabina</i> | Green Skimmer | 狹腹灰蜻 | NP | VC | | | + | | | | | | | | | | | | | | | |
| <i>Pantala flavescens</i> | Wandering Glider | 黃蜻 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Paracercion calamorum duyeri</i> | Dusky Lilysquatter | 葦尾蟳 | P, LC | C | | | | | | | | | | | | | | | | | | |
| <i>Prodasineura autumnalis</i> | Black Threadtail | 烏齒原蟳 | NP | VC | | | | | | | | | | | | | | | | | | |
| <i>Pseudagrion rubriceps rubriceps</i> | Orange-faced Sprite | 丹頂斑蟳 | NP | UC | | | | | | | | | | | | | | | | | | |
| <i>Rhinocypha perforata perforata</i> | Common Blue Jewel | 三斑鼻蟳 | NP | VC | + | | | | | | | | + | + | + | + | + | + | | | | |
| <i>Rhyothemis variegata arria</i> | Variegated Flutterer | 斑麗翅蜻 | NP | C | | | | | | | | | | | | | | | | | | |
| <i>Trithemis aurora</i> | Crimson Dropwing | 曉褐蜻 | NP | VC | + | + | | | | | | | + | + | + | + | + | + | + | | | + |
| <i>Trithemis festiva</i> | Indigo Dropwing | 慶褐蜻 | NP | VC | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Zygonyx iris insignis</i> | Emerald Cascader | 彩虹蜻 | P,PGC | VC | | | | | | | | | | | | | | | | | | |
| No. of species | | | | | 9 | 7 | 2 | 3 | 1 | 3 | 7 | 11 | 14 | 14 | 13 | 13 | 10 | 7 | 2 | 2 | 2 | 4 |

Note: NP – Not protected in Hong Kong; P-Protection in Hong Kong

“VC” – Very Common; “UC” – Uncommon; “C” - Common

“+” – Species exists in the study area

“++” – Species common in the study area

“+++” – Species abundant/dominant in study area

Commonness and status were decided according to AFCDB biodiversity website (www.hkbiobiodiversity.net)

LC- Local Concern - Fellowes *et al* (2002)PGC - Potential Global Concern - Fellowes *et al* (2002)

Table 4.5 Aquatic Macro invertebrates recorded at Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| | | | | Baseline monitoring | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | | | | | | |
|----------------------------------|--------------|----------------|------------|---------------------|--------------|-------------------|--------------|-----------------|----|-------------------|----|--------|-----------------|-------------------|----|--------|----|-------------------|----|--------|----|-------------------|-----------------|--------|----|-------------------|----|-----------------|----|-------------------|----|--------|-----------------|----|----|--------|----|--|--|
| | | | | Jul-08 | | Aug-08 | | Jan-09 | | | | Jul-09 | | | | Jan-10 | | | | Jul-10 | | | | Jan-11 | | | | Jul-11 | | | | Jan-12 | | | | Jul-12 | | | |
| | | Sampling point | | Upper stream | Lower stream | Upper stream | Lower stream | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | | |
| Species name | Chinese name | Status | Commonness | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Molluscs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | -- | NP | VC | | + | + | + | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Brotia hainanensis</i> | -- | NP | VC | +++ | ++ | ++ | ++ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Melanoides tuberculata</i> | 縮擬黑螺 | NP | VC | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pomacea canaliculata</i> | 福果螺 | NP | VC | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Radix plicatulus</i> | 羅白螺 | NP | VC | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Caenis sp.</i> | -- | NP | VC | | | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| <i>Chironomus sp.</i> | 蠅幼虫 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Electrogenus sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hydropsyche sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Indobaetis sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Mnais sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orithtrium sp.</i> | -- | NP | VC | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Crustaceans | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Cryptopotamon anacoluthon</i> | 鯉刺溪蟹 | NP | VC | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Macrobrachium hainanense</i> | 海南沼蝦 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Somaniathelphusa zanklon</i> | 東莞蟹 | NP | VC | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 9 | 12 | 10 | 11 | 10 | 11 | 3 | 2 | 9 | 10 | 3 | 3 | 2 | 9 | 12 | 5 | 3 | 2 | 7 | 12 | 5 | 4 | 2 | 7 | 15 | 13 | 11 | 13 | 15 | 16 | 4 | 1 | 1 | 2 | | |

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 "VC" - Very Common; "UC" - Uncommon; "C" - Common; "R" - Rare
 +, occurred; ++, common; +++, abundant/dominant Species in the the study area
 Reference point was the sampling location outside the works area.

Table 4.5 Aquatic Macro invertebrates recorded at Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species name | Chinese name | Status | Commonness | Impact monitoring | | | | Impact monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--------------|--------|------------|-------------------|-----------------|----|----|-------------------|----|-----------------|----|------------------------------|----|----|-----------------|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|-----------------|----|----|------------------------------|----|-----------------|----|------------------------------|----|----|-----------------|------------------------------|----|----|----|-----------------|----|----|----|--------|-----------------|----|----|--------|----|-----------------|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|
| | | | | Aug-13 | | | | Dec-13 | | | | Jan-14 | | | | Feb-14 | | | | Mar-14 | | | | Apr-14 | | | | May-14 | | | | Jun-14 | | | | Jul-14 | | | | Aug-14 | | | | Sep-14 | | | | Oct-14 | | | | | | | | | | | | | | | | | |
| Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | | | | | | | | | | | |
| Molluscs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria</i> sp. | -- | NP | VC | + | + | + | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | | | | | | | | | | | | | | | | | |
| <i>Brotia hainanensis</i> | -- | NP | VC | ++ | + | + | | | ++ | + | + | | | ++ | + | + | | | ++ | + | + | | | ++ | + | + | | | ++ | + | + | | | ++ | + | + | | | ++ | + | + | | | ++ | + | + | | | | | | | | | | | | | | | | | | | |
| <i>Melanoides tuberculata</i> | 縮擬黑螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Pomacea canaliculata</i> | 福果螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Radix plicatulus</i> | 羅白螺 | NP | VC | + | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | + | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis</i> sp. | -- | NP | VC | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | + | | | | | + | | | | | + | | | | | + | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caenis</i> sp. | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Chironomus</i> sp. | 蠅幼虫 | NP | VC | + | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Electrogenus</i> sp. | -- | NP | VC | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | + | | | | | + | | | | | + | | | | | + | | | | | | | | | | | | | | | | | | | | | | |
| <i>Hydropsyche</i> sp. | -- | NP | VC | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | + | | | | | + | | | | | + | | | | | + | | | | | | | | | | | | | | | | | | | | | | |
| <i>Indobaetis</i> sp. | -- | NP | VC | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | + | | | | | + | | | | | + | | | | | + | | | | | | | | | | | | | | | | | | | | | | |
| <i>Mnais</i> sp. | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Orithetrum</i> sp. | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| Crustaceans | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Cryptopotamon anacolathon</i> | 鯉刺溪蟹 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Macrobrachium hainanense</i> | 海南沼蝦 | NP | VC | + | + | | | | + | | | | | + | | | | | + | | | | | + | | | | + | | | | | + | | | | | + | | | | | + | | | | | | | | | | | | | | | | | | | | | | |
| <i>Somanniathelphusa zanklon</i> | 東腕蟹 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 16 | 12 | 11 | 7 | 3 | 15 | 11 | 9 | 8 | 7 | 15 | 11 | 9 | 10 | 8 | 16 | 13 | 13 | 11 | 8 | 16 | 14 | 14 | 12 | 11 | 17 | 15 | 16 | 13 | 12 | | 13 | 15 | 10 | 10 | 10 | | 11 | 12 | 11 | 10 | 9 | 13 | 11 | 13 | 13 | 10 | 13 | 13 | 15 | 15 | 9 | 13 | 14 | 16 | 14 | 12 | 13 | 14 | 16 | 15 | 11 |

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+, occurred; ++, common; +++, abundant/dominant Species in the the study area
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Table 4.5 Aquatic Macro invertebrates recorded at Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--------------|------------------------------|------------|----|----|------------------------------|-----------------|----|----|------------------------------|----|-----------------|----|------------------------------|----|----|-----------------|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|-----------------|----|----|------------------------------|----|-----------------|----|------------------------------|----|----|-----------------|--------|----|----|----|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | Nov-14 | | | | Dec-14 | | | | Jan-15 | | | | Feb-15 | | | | Mar-15 | | | | Apr-15 | | | | May-15 | | | | Jun-15 | | | | Jul-15 | | | | Aug-15 | | | | Sep-15 | | | | | | | | | | | | | | |
| | | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | | | | | | | | | | |
| Species name | Chinese name | Status | Commonness | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Molluscs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | |
| <i>Brotia hainanensis</i> | -- | NP | VC | ++ | ++ | + | + | + | + | ++ | ++ | + | + | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | | | | | | | |
| <i>Melanoides tuberculata</i> | 縮擬黑螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pomacea canaliculata</i> | 蘋果螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | |
| <i>Radix plicatulus</i> | 羅白螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | |
| <i>Caenis sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Chironomus sp.</i> | 蠅幼虫 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | |
| <i>Electrogenus sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | |
| <i>Hydropsyche sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | |
| <i>Indobaetis sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | |
| <i>Mnais sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orithtrium sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | |
| Crustaceans | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | | | |
| <i>Cryptopotamon anacolathon</i> | 鯉刺溪蟹 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Macrobrachium hainanense</i> | 海南沼蝦 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | |
| <i>Somanniathelphusa zanklon</i> | 東莞蟹 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 13 | 14 | 15 | 14 | 12 | | 13 | 12 | 12 | 13 | 11 | | 13 | 11 | 11 | 13 | 12 | | 11 | 12 | 12 | 11 | 11 | | 11 | 13 | 13 | 12 | 12 | | 11 | 9 | 12 | 15 | 12 | | 11 | 9 | 11 | 13 | 12 | | 11 | 9 | 11 | 13 | 12 | | 11 | 9 | 11 | 13 | 12 |

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(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | | |
|----------------------------------|--------------|------------------------------|------------|----|----|------------------------------|-----------------|----|----|------------------------------|-----|-----------------|----|------------------------------|-----|----|-----------------|------------------------------|-----|----|----|------------------------------|-----|----|----|------------------------------|-----------------|----|----|--------|-----|-----------------|----|-----|-----|----|----|----|
| | | Aug-16 | | | | Sep-16 | | | | Oct-16 | | | | Nov-16 | | | | Dec-16 | | | | Jan-17 | | | | Feb-17 | | | | Mar-17 | | | | | | | | |
| Sampling point | | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | Reference point | T1 | T2 | T3 | T4 | | |
| Species name | Chinese name | Status | Commonness | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Molluscs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | -- | NP | VC | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Brotia hainanensis</i> | -- | NP | VC | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | |
| <i>Melanoides tuberculata</i> | 縮擬黑螺 | NP | VC | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pomacea canaliculata</i> | 福果螺 | NP | VC | ++ | ++ | +++ | +++ | ++ | ++ | +++ | +++ | ++ | ++ | +++ | +++ | ++ | ++ | +++ | +++ | ++ | ++ | +++ | +++ | ++ | ++ | +++ | +++ | ++ | ++ | +++ | +++ | ++ | ++ | +++ | +++ | ++ | | |
| <i>Radix plicatulus</i> | 羅白螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | -- | NP | VC | + | | | + | + | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caenis sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| <i>Chironomus sp.</i> | 蠅幼虫 | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | | | |
| <i>Electrogenus sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | | | |
| <i>Hydropsyche sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | | | |
| <i>Indobaetis sp.</i> | -- | NP | VC | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Mnais sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| <i>Orithetrum sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | | | |
| Crustaceans | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | |
| <i>Cryptopotamon anacolathon</i> | 鯉刺溪蟹 | NP | VC | | | | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Macrobrachium hainanense</i> | 海南沼蝦 | NP | VC | + | | | + | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Somanniathelphusa zanklon</i> | 東莞蟹 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 13 | 10 | 12 | 14 | 14 | | 13 | 10 | 12 | 14 | 14 | | 13 | 10 | 12 | 14 | 14 | | 13 | 10 | 12 | 14 | 14 | | 13 | 10 | 12 | 14 | 14 | | 13 | 10 | 12 | 14 | 14 |

Note: NP - Not protected in Hong Kong; P - Protected in Hong Kong
 "VC" - Very Common; "UC" - Uncommon; "C" - Common; "R" - Rare
 +, occurred; ++, common; +++, abundant/dominant Species in the the study area
 Reference point was the sampling location outside the works area.

Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Baseline monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | | | | | | | | | | | |
|--|--------------|----------------------|-----------|---------------------|--------------|--------------|--------------|-------------------|-----|-----|-----|-------------------|-----------|----|----|-------------------|----|-----------|----|-------------------|----|----|-----------|-------------------|----|----|----|-----------|----|----|----|----|----|---|---|---|---|--|
| | | | | Jul-08 | | Aug-08 | | Jan-09 | | | | Jul-09 | | | | Jan-10 | | | | Jul-10 | | | | Jan-11 | | | | Jul-11 | | | | | | | | | | |
| | | | | Upper stream | Lower stream | Upper stream | Lower stream | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | | | | | | |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | + | | + | | | | | | + | | | | | | | | | | | | + | + | | | | | | | | | | | | |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯰 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cyprinus carpio var. viridivulaceus</i> | 錦鯉 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | | | + | + | + | | + | | + | + | + | + | | | | | | + | | | + | + | + | + | + | | | | | | | | | | |
| <i>Liniparhomaloptera disparis</i> | 擬平鰕 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰕 | NP | C | + | | | + | | | | | | | | | | | | | | + | | | + | | | | | | | | | | | | | | |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | | + | | + | | | | | | | | | | | | | | | | | | | | + | + | + | | | | | | | | | |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | + | | | + | | | | | | | | | | | | | | + | | | + | | | | | | | | | | | | | | |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | | + | | | | | | | | | | | | | | + | | | + | | | | | | | | | | | | | | |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰕 | NP | C | | + | | + | | + | ++ | ++ | ++ | + | | ++ | ++ | + | + | | | ++ | ++ | + | + | | ++ | + | | | | | | | | | | | |
| <i>Pterocryptis cochinchinensis</i> | 黃鯪 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | ++ | + | ++ | + | + | | + | | ++ | | | | | | | | | + | | + | + | + | + | + | | | | | | | | | | | |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | | | + | + | + | | + | | + | | | | | | | | | + | | + | + | + | + | + | | | | | | | | | | | |
| <i>Schistura fasciolata</i> | 橫紋南鰕 | NP | C | | + | + | + | + | | + | + | + | | | | | | | | | + | + | + | + | + | + | + | + | | | | | | | | | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | + | + | | | + | + | | ++ | | + | | | | | | + | | + | + | ++ | ++ | + | | | | | | | | | | | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | | + | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Zacco platypus</i> | 寬鰭鱈 | NP | C | + | ++ | + | ++ | +++ | +++ | +++ | +++ | +++ | | ++ | ++ | | | | | | ++ | | + | ++ | ++ | ++ | + | | | | | | | | | | | |
| 2x2m fish counting | | No. of fish | | 70 | 60 | 75 | 60 | 38 | 45 | 40 | 40 | 8 | 38 | 20 | 5 | 15 | 7 | 38 | 20 | 5 | 15 | 7 | 32 | 12 | 6 | 10 | 20 | 30 | 22 | 10 | 7 | 5 | 10 | 4 | 2 | 0 | 0 | |
| No. of species | | | | 5 | 8 | 11 | 12 | 7 | 7 | 4 | 8 | 2 | 5 | 3 | 3 | 5 | 6 | 5 | 3 | 2 | 2 | 2 | 9 | 8 | 10 | 13 | 9 | 9 | 7 | 4 | 4 | 8 | 10 | 8 | 9 | 5 | 3 | |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | | + | + | + | | | | + | + | | | | + | + | | | + | | | | | | | | | | | | | | | | | |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | |

Note: NP – Not protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” - Common; “R” - Rare
 +, occurred; ++, common; +++, abundant/dominant Species in the the study area
 -V – Listed as vulnerable in China Fish Red Data Book
 -Reference point was the sampling location outside the works area used to compare the with the data within works area.
 “Cap 170” - List in Wild Animals Protection Ordinance (Cap.170)
 “NT” - Near Treated in IUCN Red List Status
 “PGC”-Potential Global Concern by Fellowes et al (2002)

Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Impact monitoring | | | | | Impact monitoring | | | | | Impact monitoring | | | | | Impact monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | |
|---|--------------|----------------------|-----------|-------------------|----|----|----|----|-------------------|----|----|----|----|-------------------|----|----|----|----|-------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|-----|----|----|----|
| | | | | Jan-12 | | | | | Jul-12 | | | | | Aug-13 | | | | | Dec-13 | | | | | Jan-14 | | | | | Feb-14 | | | | | Mar-14 | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | | + | + | | | | + | + | + | | | + | + | + | + | | + | + | + | + | | + | + | ++ | +++ | + | + | + | ++ | ++ | +++ | ++ | | |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯪 | NP | C | | | | | | | + | | + | | | | + | | + | | | + | | + | | | + | | + | | | | | | + | + | | | |
| <i>Cyprinus carpio var. viridiviolaceus</i> | 錦鯉 | NP | C | | | | | | | | | | | | | | | + | | | | + | | | | | | + | | | | | | + | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Liniparhomaloptera disparis</i> | 擬平鰕 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰕 | NP | C | + | | | | | | + | | | | | | + | | | | | + | | | | | + | | + | | | | | | + | + | | | |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | + | + | | | | | + | + | + | + | | | + | + | + | + | | + | + | + | + | | + | + | + | + | | | | + | + | + | | | |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | + | | | | | | + | | + | + | | | | | | | | | + | + | | | | | + | + | | | | | + | + | | | |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰕 | NP | C | + | | | | | | + | | | | | | + | | | | | + | | | | | + | + | + | | | | | | + | + | | | |
| <i>Pterocryptis cochinchinensis</i> | 黃鰪 | NP | C | | | | | | | | | | | | | + | | | | | + | | | | | + | | + | | | | | | + | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | + | | | | + | + | + | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | + | + | + | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Schistura fasciolata</i> | 橫紋南鰕 | NP | C | + | + | | | | | + | + | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | + | | | | | | + | + | | | | | + | + | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Zacco platypus</i> | 寬鱮 | NP | C | + | + | | | | | + | + | + | + | | | + | + | ++ | +++ | ++ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| 2x2m fish counting | | No. of fish | | 6 | 3 | 1 | 0 | 0 | | 8 | 5 | 2 | 0 | 0 | | 5 | 2 | 3 | 2 | 3 | | 5 | 2 | 3 | 2 | 3 | | 6 | 20 | 60 | 20 | 10 | | 16 | 40 | 70 | 40 | 30 |
| No. of species | | | | 12 | 8 | 6 | 4 | 3 | | 14 | 10 | 10 | 4 | 3 | | 14 | 11 | 11 | 6 | 4 | | 14 | 9 | 12 | 8 | 6 | | 14 | 10 | 13 | 11 | 6 | | 14 | 10 | 15 | 11 | 7 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | | + | + | | | | | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 0 | 1 | 1 | 0 | | 0 | 0 | 0 | 1 | 0 | | 1 | 0 | 1 | 1 | 0 | | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

Note: NP – Not protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” - Common; "R" - Rare
 +, occurred; ++, common; +++, abundant/dominant Species in the the study area
 -V – Listed as vulnerable in China Fish Red Data Book
 -Reference point was the sampling location outside the works area used to compare the with the data within works area.
 "Cap 170" - List in Wild Animals Protection Ordinance (Cap.170)
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 "PGC"-Potential Global Concern by Fellowes *et al* (2002)

Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | |
|---|--------------|----------------------|-----------|------------------------------|----|----|-----|-----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|---|
| | | | | Apr-14 | | | | | May-14 | | | | | Jun-14 | | | | | Jul-14 | | | | | Aug-14 | | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | ++ | ++ | +++ | ++ | | + | + | + | + | | + | + | + | + | | + | ++ | ++ | + | | ++ | ++ | ++ | + | |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | + | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯰 | NP | C | | | | + | + | | | | | | | | | | | | | | | | | | | | + | |
| <i>Cyprinus carpio var. viridiviolaceus</i> | 錦鯉 | NP | C | | | + | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Liniparhomaloptera disparis</i> | 擬平鰕 | NP | C | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰕 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰕 | NP | C | | | + | + | | | + | + | + | + | | + | + | + | + | | + | + | + | | + | + | + | + | + | |
| <i>Pterocryptis cochinchinensis</i> | 黃鯪 | NP | C | | + | | + | | | + | | | | | + | | | | | + | | | | + | | | + | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | ++ | ++ | + |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Schistura fasciolata</i> | 橫紋南鰕 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | ++ | ++ | + | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | | + | + | | | + | + | | | | + | + | | | | + | + | | | | + | + | + | |
| <i>Zacco platypus</i> | 寬鱮 | NP | C | | + | + | ++ | +++ | ++ | + | + | ++ | ++ | ++ | + | + | + | + | + | + | + | + | + | + | + | ++ | ++ | + | |
| 2x2m fish counting | | No. of fish | | 40 | 50 | 60 | 60 | 50 | 20 | 30 | 30 | 20 | 20 | 6 | 12 | 10 | 6 | 8 | 8 | 16 | 15 | 5 | 10 | 10 | 12 | 18 | 10 | 12 | |
| No. of species | | | | 11 | 12 | 16 | 14 | 12 | 13 | 13 | 13 | 12 | 11 | 10 | 12 | 13 | 11 | 11 | 11 | 12 | 13 | 12 | 11 | 10 | 12 | 13 | 13 | 11 | |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

Note: NP – Not protected in Hong Kong

“VC” – Very Common; “UC” – Uncommon; “C” - Common; "R" - Rare

+, occurred; ++, common; +++, abundant/dominant Species in the the study area

-V – Listed as vulnerable in China Fish Red Data Book

-Reference point was the sampling location outside the works area used to compare the with the data within works area.

"Cap 170" - List in Wild Animals Protection Ordinance (Cap.170)

"NT" - Near Threatened in IUCN Red List Status

"PGC"-Potential Global Concern by Fellowes *et al* (2002)

Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonness | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | |
|--|--------------|----------------------|------------|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|
| | | | | Sep-14 | | | | | Oct-14 | | | | | Nov-14 | | | | | Dec-14 | | | | | Jan-15 | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | ++ | ++ | ++ | + | | ++ | ++ | ++ | + | | ++ | ++ | ++ | ++ | | ++ | ++ | ++ | ++ | | ++ | ++ | ++ | ++ |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯪 | NP | C | | | | | + | | | | | + | | | | | | | | | | | | | | | + |
| <i>Cyprinus carpio var. viridivulaceus</i> | 錦鯉 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Liniparhomaloptera disparis</i> | 擬平鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Misgurnus anguillicaudatus</i> | 泥鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Pterocryptis cochinchinensis</i> | 黃鰪 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | + | ++ | ++ |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | + | + | + | + | + | + | + | + | + | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | ++ |
| <i>Schistura fasciolata</i> | 橫紋南鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Zacco platypus</i> | 寬鱮 | NP | C | + | ++ | ++ | ++ | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | ++ | ++ |
| 2x2m fish counting | | No. of fish | | 20 | 30 | 30 | 20 | 20 | 30 | 40 | 40 | 30 | 30 | 50 | 70 | 70 | 60 | 60 | 60 | 60 | 50 | 50 | 50 | 50 | 50 | 50 | 60 | 60 |
| No. of species | | | | 11 | 13 | 14 | 15 | 13 | 11 | 13 | 14 | 15 | 12 | 11 | 13 | 14 | 13 | 11 | 11 | 13 | 14 | 14 | 11 | 10 | 11 | 12 | 13 | 10 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

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 “VC” – Very Common; “UC” – Uncommon; “C” - Common; “R” - Rare
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Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | |
|--|--------------|----------------------|-----------|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|----|
| | | | | Feb-15 | | | | | Mar-15 | | | | | Apr-15 | | | | | May-15 | | | | | Jun-15 | | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | ++ | ++ | ++ | ++ | | ++ | ++ | ++ | ++ | | ++ | ++ | ++ | ++ | | + | + | ++ | ++ | | + | + | ++ | ++ | |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | + | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯰 | NP | C | | | | | + | | | | | + | | | | | | | | | | | | | | | | + |
| <i>Cyprinus carpio var. viridivulaceus</i> | 錦鯉 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | + |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Liniparhomaloptera disparis</i> | 擬平鰕 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Misgurnus anguillicaudatus</i> | 泥鰕 | NP | C | | + | | | | + | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | ++ | + | + | |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | | + | + | + | + | + | + | ++ | + | + | + | + | ++ | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | | | + | | | + | + | | | + | + | | | | | + | + | | | | | | | + |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰕 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Pterocryptis cochinchinensis</i> | 黃鯪 | NP | C | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ |
| <i>Schistura fasciolata</i> | 橫紋南鰕 | NP | C | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | | + | ++ | ++ | + | | | + | ++ | ++ | + | | + | ++ | ++ | + | | + | ++ | ++ | + | | + | ++ | ++ | + |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | | | + | | | | | + | | | | | + | | | | | | | | + | | | + |
| <i>Zacco platypus</i> | 寬鱮 | NP | C | | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + |
| 2x2m fish counting | | No. of fish | | 50 | 60 | 60 | 60 | 40 | 50 | 60 | 60 | 60 | 40 | 40 | 50 | 55 | 50 | 40 | 20 | 30 | 30 | 20 | 20 | 20 | 20 | 30 | 30 | 20 | 20 |
| No. of species | | | | 10 | 11 | 12 | 14 | 10 | 10 | 13 | 13 | 14 | 11 | 13 | 12 | 14 | 15 | 11 | 13 | 12 | 14 | 12 | 13 | 12 | 13 | 13 | 13 | 12 | |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

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Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | | | | | |
|---|--------------|----------------------|-----------|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|-----------|----|----|----|----|
| | | | | Jul-15 | | | | | Aug-15 | | | | | Sep-15 | | | | | Oct-15 | | | | | Nov-15 | | | | | Dec-15 | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 |
| Fish | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | + | + | + | + | | + | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | ++ |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯰 | NP | C | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + |
| <i>Cyprinus carpio var. viridiviolaceus</i> | 錦鯉 | NP | C | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + |
| <i>Liniparhomaloptera disparis</i> | 擬平鰍 | NP | C | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + |
| <i>Misgurnus anguillicaudatus</i> | 泥鰍 | NP | C | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰍 | NP | C | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | |
| <i>Pterocryptis cochinchinensis</i> | 黃鰰 | NP | C | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | | + | + | ++ | ++ | | + | + | ++ | ++ | | + | + | ++ | ++ | | + | + | ++ | ++ | | + | + | ++ | ++ | | + | + | ++ | ++ |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ |
| <i>Schistura fasciolata</i> | 橫紋南鰍 | NP | C | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | | + | + | ++ | + | | + | + | ++ | + | | + | + | ++ | + | | + | + | ++ | + | | + | + | ++ | + | | + | + | ++ | + |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + |
| <i>Zacco platypus</i> | 寬鱮鱮 | NP | C | | + | ++ | ++ | + | | + | ++ | ++ | + | | + | ++ | ++ | + | | + | ++ | ++ | + | | + | ++ | ++ | + | | + | ++ | ++ | + |
| 2x2m fish counting | | No. of fish | | 12 | 15 | 18 | 8 | 7 | 15 | 12 | 16 | 10 | 10 | 18 | 15 | 20 | 15 | 15 | 25 | 20 | 22 | 18 | 20 | 40 | 35 | 40 | 35 | 40 | 55 | 40 | 45 | 45 | 40 |
| No. of species | | | | 12 | 12 | 13 | 13 | 12 | 12 | 12 | 13 | 13 | 12 | 12 | 10 | 13 | 13 | 12 | 12 | 10 | 13 | 13 | 12 | 12 | 10 | 13 | 13 | 12 | 12 | 10 | 13 | 12 | 12 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

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Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | | | | | |
|--|--------------|----------------------|-----------|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|-----------|----|----|----|----|
| | | | | Jan-16 | | | | | Feb-16 | | | | | Mar-16 | | | | | Apr-16 | | | | | May-16 | | | | | Jun-16 | | | | | Jul-16 | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 |
| Fish | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯰 | NP | C | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | |
| <i>Cyprinus carpio var. viridivulaceus</i> | 錦鯉 | NP | C | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Liniparhomaloptera disparis</i> | 擬平鰻 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Misgurnus anguillicaudatus</i> | 泥鰻 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Oreochromis niloticus</i> | 尼羅口鯪非鯪 | NP | C | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰻 | NP | C | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | |
| <i>Pterocryptis cochinchinensis</i> | 黃鰷 | NP | C | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | | + | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ |
| <i>Schistura fasciolata</i> | 橫紋南鰻 | NP | C | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | | + | ++ | ++ | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | ++ | + | + | + | + | ++ | + | + | + | + | ++ | + | + | + | + | ++ | + | + | + | + | ++ | + | + | + | + | ++ | + | + | + | + | ++ | + | + |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | | | | + | + | |
| <i>Zacco platypus</i> | 寬鱮鱮 | NP | C | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ |
| 2x2m fish counting | | No. of fish | | 60 | 50 | 50 | 50 | 40 | 65 | 55 | 55 | 55 | 40 | 60 | 60 | 60 | 55 | 40 | 45 | 45 | 45 | 40 | 30 | 45 | 25 | 25 | 20 | 15 | 40 | 30 | 25 | 25 | 20 | 30 | 20 | 15 | 20 | 25 |
| No. of species | | | | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + | + | | + | + | + |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Note: NP – Not protected in Hong Kong
“VC” – Very Common; “UC” – Uncommon; “C” - Common; "R" - Rare
+, occurred; ++, common; +++, abundant/dominant Species in the the study area
-V – Listed as vulnerable in China Fish Red Data Book
-Reference point was the sampling location outside the works area used to compare the with the data within works area.
"Cap 170" - List in Wild Animals Protection Ordinance (Cap.170)
"NT" - Near Treated in IUCN Red List Status
"PGC"-Potential Global Concern by Fellowes *et al* (2002)

Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | |
|---|--------------|----------------------|-----------|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|
| | | | | Aug-16 | | | | | Sep-16 | | | | | Oct-16 | | | | | Nov-16 | | | | | Dec-16 | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯪 | NP | C | | | | + | | | | | | + | | | | | | | | | | | | | | | + |
| <i>Cyprinus carpio var. viridiviolaceus</i> | 錦鯉 | NP | C | | | + | | | | | | | + | | | | | | | | | | | | | | | + |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Liniparhomaloptera disparis</i> | 擬平鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Misgurnus anguillicaudatus</i> | 泥鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + | | | + | + | + |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰕 | NP | C | + | + | | | | + | + | | | | | | + | + | | | | + | + | | | | + | + | |
| <i>Pterocryptis cochinchinensis</i> | 黃鰪 | NP | C | + | | | | | + | | | | | | | + | | | | | + | | | | | + | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ |
| <i>Schistura fasciolata</i> | 橫紋南鰕 | NP | C | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | | + | ++ | ++ | ++ | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | ++ | + | + | + | + | ++ | + | + | + | + | ++ | + | + | + | + | + | ++ | + | + | + | + | + | + |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | + | + | | | | + | + | | | + | + | | | | | + | + | | | | + | + | |
| <i>Zacco platypus</i> | 寬鱮 | NP | C | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | |
| 2x2m fish counting | | No. of fish | | 20 | 15 | 15 | 15 | 25 | 25 | 20 | 20 | 15 | 22 | 25 | 25 | 25 | 20 | 20 | 30 | 30 | 30 | 30 | 25 | 45 | 40 | 40 | 35 | 35 |
| No. of species | | | | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Note: NP – Not protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” - Common; “R” - Rare
 +, occurred; ++, common; +++, abundant/dominant Species in the the study area
 -V – Listed as vulnerable in China Fish Red Data Book
 -Reference point was the sampling location outside the works area used to compare the with the data within works area.
 “Cap 170” - List in Wild Animals Protection Ordinance (Cap.170)
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 “PGC”-Potential Global Concern by Fellowes *et al* (2002)

Table 4.6 Fish species and amphibians at Upper Lam Tsuen River

(T1- located at upper river channel sampling site to T4 - located at lower river Channel sampling site)

| Species | Chinese name | Status | Commonnes | Post construction monitoring | | | | | Post construction monitoring | | | | | Post construction monitoring | | | | |
|---|--------------|----------------------|-----------|------------------------------|----|----|----|----|------------------------------|----|----|----|----|------------------------------|----|----|----|----|
| | | | | Jan-17 | | | | | Feb-17 | | | | | Mar-17 | | | | |
| | | | | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 | Reference | T1 | T2 | T3 | T4 |
| Fish | | | | | | | | | | | | | | | | | | |
| <i>Acrossocheilus parallens</i> | 側條光唇魚 | P, PGC | R | | | + | + | ++ | | | + | + | ++ | | | + | + | ++ |
| <i>Channa maculate</i> | 斑鱧 | NP | C | | | | | | | | | | | | | | | |
| <i>Cirrhina molitorella</i> | 鯪魚 | NP | C | | | | | | | | | | | | | | | |
| <i>Clarias fuscus</i> | 胡子鯰 | NP | C | | | | | + | | | | | + | | | | | + |
| <i>Cyprinus carpio var. viridiviolaceus</i> | 錦鯉 | NP | C | | | | | + | | | | | + | | | | | + |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Liniparhomaloptera disparis</i> | 擬平鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Misgurnus anguillicaudatus</i> | 泥鰕 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ |
| <i>Parazacco spilurus</i> | 異鱧 | V and NP | C | + | | + | + | + | + | | + | + | + | + | | + | + | + |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | | | + | | | + | + | + | + | | + | + | + |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰕 | NP | C | + | + | | | | + | + | | | | + | + | | | |
| <i>Pterocryptis cochinchinensis</i> | 黃鰰 | NP | C | + | | | | | + | | | | | + | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | ++ | ++ | + | + | + | ++ | ++ | + | + | + | ++ | ++ | + |
| <i>Rhinogobius spp.</i> | 鰕虎魚 | NP | C/UN/R | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ |
| <i>Schistura fasciolata</i> | 橫紋南鰕 | NP | C | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ | + | ++ | ++ | ++ | ++ |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | ++ | + | + | + | + | ++ | + | + | + | + | ++ | + | + |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | + | + | | | | + | + | | | + | + | | |
| <i>Zacco platypus</i> | 寬鱮 | NP | C | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ | + | + | ++ | ++ | ++ |
| 2x2m fish counting | | No. of fish | | 50 | 45 | 45 | 35 | 35 | 55 | 50 | 50 | 40 | 40 | 60 | 55 | 55 | 50 | 50 |
| No. of species | | | | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 | 12 | 10 | 14 | 13 | 10 |
| Amphibian | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港瘰螈 | P (Cap 170, NT, PGC) | R | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Fejervarya limnocharis</i> | 澤蛙 | NP | VC | | | | | | | | | | | | | | | |
| No. of species | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Note: NP – Not protected in Hong Kong

“VC” – Very Common; “UC” – Uncommon; “C” - Common; "R" - Rare

+, occurred; ++, common; +++, abundant/dominant Species in the the study area

-V – Listed as vulnerable in China Fish Red Data Book

-Reference point was the sampling location outside the works area used to compare the with the data within works area.

"Cap 170" - List in Wild Animals Protection Ordinance (Cap.170)

"NT" - Near Threatened in IUCN Red List Status

"PGC"-Potential Global Concern by Fellowes *et al* (2002)

Table 4.7 Abotic data for Upper Lam Tsuen River

(T1- located at upper river channel sampling site
to T4 - located at lower river Channel sampling
site)

| Parameter / date | Baseline monitoring | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | |
|----------------------------|---------------------|----------------------|------|------|------|-------------------|------|------|------|-------------------|------|------|------|-------------------|-----|-----|-----|-------------------|------|------|-----|-------------------|------|------|------|
| | 8-Aug | Jan-09 | | | | Jul-09 | | | | Jan-10 | | | | Jul-10 | | | | Jan-11 | | | | Jul-11 | | | |
| Replicate | | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 |
| DO (mg/L) | 9.2 | 9.8 | 9.9 | 9.4 | 9.1 | 6.4 | 6.4 | 6.5 | 6.8 | 9.7 | 9.5 | 9.5 | 9.3 | 8.3 | 8.5 | 8.5 | 8.7 | 9.6 | 9.5 | 9.5 | 9.1 | 9.5 | 9.6 | 9.4 | 9.3 |
| pH | 7.49 | 7.24 | 7.36 | 7.53 | 7.44 | 7.1 | 7.25 | 7 | 7.05 | 7.9 | 8.1 | 8.1 | 8.2 | 7.4 | 7.5 | 7.3 | 7.4 | 7.1 | 7.2 | 7.2 | 7.1 | 7.3 | 7.1 | 7.1 | 7.1 |
| Nitrate (mg N/L) | 0.36 | 0.79 | 1.1 | 1.2 | 1.2 | 0.31 | 0.48 | 0.48 | 0.59 | 0.56 | 1.11 | 1.13 | 1.33 | 0.1 | 0.2 | 0.2 | 0.3 | 0.1 | 0.2 | 0.4 | 0.5 | 0.1 | 0.2 | 0.3 | 0.45 |
| Ammonia (mg/L) | <0.01 | PO4-P (µg P/L): <100 | | | | 0.02 | 0.02 | 0.02 | 0.03 | 0.01 | 0.16 | 0.17 | 0.07 | 0.2 | 0.4 | 0.2 | 0.2 | 0.05 | 0.07 | 0.07 | 0.1 | 0.06 | 0.05 | 0.08 | 0.1 |
| Salinity (ppt) | <0.1 | <0.1 | 0.1 | 0.1 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Conductivity (µS/cm) | 60 | 80 | 100 | 120 | 120 | 45 | 51 | 52 | 63 | 62 | 96 | 98 | 114 | 84 | 100 | 460 | 54 | 90 | 87 | 93 | 120 | 93 | 90 | 90 | 100 |
| BOD (mg/L) | <2 | <2 | <2 | <2 | 3 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Water flow at pool (m/s) | 0.1-0.3 | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | |
| Water flow at riffle (m/s) | 0.4-0.7 | 0.2-0.5 | | | | 0.2-0.5 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | |
| Sand (%) | 15 | 15 | 10 | 10 | 10 | 10 | 10 | 10 | 15 | 8 | 8 | 8 | 15 | 8 | 8 | 8 | 15 | 8 | 8 | 8 | 15 | 8 | 8 | 8 | 15 |
| Stone (%) | 80 | 80 | 88 | 88 | 88 | 88 | 88 | 88 | 70 | 90 | 90 | 90 | 70 | 90 | 90 | 90 | 70 | 90 | 90 | 90 | 70 | 90 | 90 | 90 | 70 |
| Mud (%) | 5 | 5 | 2 | 2 | 2 | 2 | 2 | 2 | 5 | 2 | 2 | 2 | 5 | 2 | 2 | 2 | 5 | 2 | 2 | 2 | 5 | 2 | 2 | 2 | 5 |

Table 4.7 Abotic data for Upper Lam Tsuen River

(T1- located at upper river channel sampling site
to T4 - located at lower river Channel sampling
site)

| Parameter / date | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Post construction monitoring | | | |
|----------------------------|-------------------|------|------|-----|-------------------|------|------|------|-------------------|------|------|------|-------------------|-------|-------|-------|------------------------------|-----|------|------|
| | Jan-12 | | | | Jul-12 | | | | Aug-13 | | | | Dec-13 | | | | Jan-14 | | | |
| Replicate | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 |
| DO (mg/L) | 9.4 | 9.2 | 9.4 | 9.2 | 8.2 | 8 | 7.8 | 7.3 | 8.9 | 8.5 | 8.7 | 8.8 | 9.3 | 8.6 | 8.8 | 8.7 | 9.1 | 9.0 | 8.6 | 8.5 |
| pH | 7.2 | 6.9 | 6.8 | 6.7 | 6.8 | 7.1 | 7.3 | 7.6 | 6.5 | 6.8 | 6.8 | 7.1 | 6.2 | 6.9 | 7.1 | 7.1 | 6.2 | 6.9 | 7.1 | 7.1 |
| Nitrate (mg N/L) | 0.2 | 0.3 | 0.5 | 0.6 | 0.13 | 0.67 | 0.62 | 0.82 | 0.74 | 0.72 | 0.83 | 0.79 | 0.48 | 0.57 | 0.77 | 0.89 | 0.9 | 0.8 | 1.3 | 1.26 |
| Ammonia (mg/L) | 0.04 | 0.05 | 0.06 | 0.2 | 0.01 | 0.02 | 0.04 | 0.03 | 0.02 | 0.03 | 0.03 | 0.04 | <0.01 | <0.01 | <0.01 | <0.01 | 0.04 | 0.1 | 0.12 | 0.15 |
| Salinity (ppt) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Conductivity (µS/cm) | 92 | 84 | 96 | 110 | 41 | 38 | 73 | 86 | 67 | 77 | 74 | 75 | 62 | 64 | 90 | 110 | 72 | 78 | 88 | 108 |
| BOD (mg/L) | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Water flow at pool (m/s) | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | |
| Water flow at riffle (m/s) | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | |
| Sand (%) | 10 | 15 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Stone (%) | 80 | 70 | 80 | 70 | 60 | 60 | 60 | 60 | 75 | 75 | 75 | 75 | 90 | 85 | 85 | 85 | 90 | 85 | 85 | 85 |
| Mud (%) | 10 | 15 | 10 | 20 | 30 | 30 | 30 | 30 | 15 | 15 | 15 | 15 | 5 | 10 | 10 | 10 | 5 | 10 | 10 | 10 |

Table 4.7 Abotic data for Upper Lam Tsuen River

(T1- located at upper river channel sampling site
to T4 - located at lower river Channel sampling
site)

| Parameter / date | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | |
|----------------------------|------------------------------|------|-----|------|------------------------------|------|------|-----|------------------------------|-----|-----|-----|------------------------------|-------|-------|-------|------------------------------|-------|-------|-------|------------------------------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|-------|
| | Feb-14 | | | | Mar-14 | | | | Apr-14 | | | | May-14 | | | | Jun-14 | | | | Jul-14 | | | | Aug-14 | | | | | | | |
| Replicate | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 |
| DO (mg/L) | 7.8 | 8.7 | 9.8 | 9.8 | 7.5 | 7.8 | 8.2 | 8.1 | 7.7 | 7.6 | 7.8 | 8.0 | 8.2 | 7.8 | 8.1 | 8.2 | 7.6 | 7.8 | 7.4 | 7.2 | 7.6 | 7.2 | 7.6 | 7.5 | 7.6 | 7.4 | 7.3 | 7.6 | 7.6 | 7.4 | 7.3 | 7.6 |
| pH | 8.2 | 8.5 | 8 | 7.8 | 8.3 | 8.2 | 7.6 | 7.2 | 7.6 | 7.8 | 8.2 | 7.8 | 7.7 | 7.8 | 7.9 | 8.2 | 7.6 | 7.8 | 7.8 | 8.1 | 7.6 | 7.7 | 7.8 | 8 | 7.8 | 7.5 | 7.6 | 7.8 | 7.8 | 7.5 | 7.6 | 7.8 |
| Nitrate (mg N/L) | 1.3 | 1.8 | 1.6 | 2.1 | 1.2 | 1.4 | 1.1 | 1.3 | 1.5 | 1.5 | 1.3 | 1.2 | 0.9 | 0.7 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 | 0.8 | 1.1 | 1.1 | 0.8 | 1.2 | 1.1 | 0.9 | 1.1 | 1.2 | 1.1 | 0.9 | 1.1 |
| Ammonia (mg/L) | 0.05 | 0.04 | 0.1 | 0.12 | 0.06 | 0.04 | 0.04 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Salinity (ppt) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.02 | 0.02 | 0.03 | 0.03 | 0.01 | 0.02 | 0.03 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Conductivity (µS/cm) | 78 | 87 | 118 | 119 | 120 | 123 | 125 | 123 | 96 | 114 | 120 | 122 | 82 | 80 | 72 | 66 | 39 | 58 | 69 | 70 | 43 | 85 | 72 | 75 | 75 | 78 | 82 | 86 | 75 | 78 | 82 | 86 |
| BOD (mg/L) | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Water flow at pool (m/s) | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.01-0.2 | | | | 0.03-0.2 | | | | 0.03-0.2 | | | | 0.03-0.2 | | | | | | | |
| Water flow at riffle (m/s) | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | 0.2-0.6 | | | | | | | |
| Sand (%) | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 5 | 5 | 5 | 10 | 5 | 5 | 5 | 10 | 5 | 5 | 5 | 10 | 5 | 5 | 8 | 10 | 5 | 5 | 8 | 10 |
| Stone (%) | 90 | 85 | 85 | 85 | 90 | 85 | 85 | 80 | 90 | 85 | 85 | 75 | 90 | 85 | 85 | 75 | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 |
| Mud (%) | 5 | 10 | 10 | 10 | 5 | 10 | 10 | 15 | 5 | 10 | 10 | 15 | 5 | 10 | 10 | 15 | 2 | 5 | 5 | 15 | 2 | 5 | 5 | 15 | 2 | 5 | 2 | 15 | 2 | 5 | 2 | 15 |

Table 4.7 Abotic data for Upper Lam Tsuen River

(T1- located at upper river channel sampling site
to T4 - located at lower river Channel sampling
site)

| Parameter / date | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | |
|----------------------------|------------------------------|------|------|------|------------------------------|------|------|------|------------------------------|------|------|------|------------------------------|------|------|------|------------------------------|------|------|------|
| | Aug-16 | | | | Sep-16 | | | | Oct-16 | | | | Nov-16 | | | | Dec-16 | | | |
| Replicate | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 |
| DO (mg/L) | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 7.9 | 7.9 | 8.0 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| pH | 7.7 | 7.7 | 7.6 | 7.7 | 7.7 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.6 | 7.6 |
| Nitrate (mg N/L) | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 |
| Ammonia (mg/L) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Salinity (ppt) | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Conductivity (µS/cm) | 32.0 | 39.0 | 40.0 | 42.0 | 33.0 | 34.0 | 39.0 | 43.0 | 29.0 | 32.0 | 34.0 | 45.0 | 28.0 | 31.0 | 31.0 | 32.0 | 32.0 | 32.0 | 34.0 | 36.0 |
| BOD (mg/L) | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Water flow at pool (m/s) | 0.03-0.2 | | | | 0.03-0.2 | | | | 0.03-0.2 | | | | 0.03-0.2 | | | | 0.03-0.2 | | | |
| Water flow at riffle (m/s) | 0.2-0.5 | | | | 0.2-0.5 | | | | 0.2-0.5 | | | | 0.2-0.5 | | | | 0.2-0.5 | | | |
| Sand (%) | 5 | 5 | 8 | 10 | 5 | 5 | 8 | 10 | 5 | 5 | 8 | 10 | 5 | 5 | 8 | 10 | 5 | 5 | 8 | 10 |
| Stone (%) | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 |
| Mud (%) | 2 | 5 | 2 | 15 | 2 | 5 | 2 | 15 | 2 | 5 | 2 | 15 | 2 | 5 | 2 | 15 | 2 | 5 | 2 | 15 |

Table 4.7 Abotic data for Upper Lam Tsuen River

(T1- located at upper river channel sampling site
to T4 - located at lower river Channel sampling
site)

| Parameter / date | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | |
|----------------------------|------------------------------|-------|-------|-------|------------------------------|-------|-------|-------|------------------------------|-------|-------|-------|
| | Jan-17 | | | | Feb-17 | | | | Mar-17 | | | |
| Replicate | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 | T1 | T2 | T3 | T4 |
| DO (mg/L) | 7.9 | 7.9 | 8.0 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| pH | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.7 | 7.7 |
| Nitrate (mg N/L) | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 |
| Ammonia (mg/L) | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Salinity (ppt) | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Conductivity (µS/cm) | 33.0 | 32.0 | 35.0 | 36.0 | 29.0 | 29.0 | 32.0 | 35.0 | 33.0 | 34.0 | 32.0 | 33.0 |
| BOD (mg/L) | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Water flow at pool (m/s) | 0.03-0.2 | | | | 0.03-0.2 | | | | 0.03-0.2 | | | |
| Water flow at riffle (m/s) | 0.2-0.5 | | | | 0.2-0.5 | | | | 0.2-0.5 | | | |
| Sand (%) | 5 | 5 | 8 | 10 | 5 | 5 | 8 | 10 | 5 | 5 | 8 | 10 |
| Stone (%) | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 | 93 | 90 | 90 | 75 |
| Mud (%) | 2 | 5 | 2 | 15 | 2 | 5 | 2 | 15 | 2 | 5 | 2 | 15 |

Agreement No. CE65/2013(EP)
Post-Construction Ecological Monitoring of River
Improvement Work in Upper Lam Tsuen River, She Shan
River and Upper Tai Po River – Investigation
Post-Construction Ecological Monitoring Report (No.39)
She Shan River

March 2017



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20 April, 2017

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20 April, 2017

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Post-Construction Ecological Monitoring of River Improvement Work in Upper Lam Tsuen River, She Shan River and Upper Tai Po River – Investigation

Agreement No. CE65/2013(EP) Post-Construction Ecological Monitoring Report (No.39) She Shan River

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FIGURES

Figure 1: Sampling location of ecological survey and monitoring at She Shan River, Tai Po.

PHOTOS

Photo 1: General view of the river habitat (Lower section)

Photo 2: General view of the river habitat (Middle section)

Photo 3: General view of the river habitat (Upper section)

Photo 4: Avifauna –*Ardeola bacchu*

Photo 5: Avifauna –*Alcedo atthis*

Photo 6: Avifauna –*Milvus lineatus*

Photo 7: Kick Sampling

Photo 8: Hong Kong Newt Larva

Photo 9: Aquatic sample

Photo 10: Aquatic sample

TABLES

Table 4.1: Flora species recorded along the She Shan River including riparian habitat.

Table 4.2: Flora species recorded from belt transect survey at the She Shan River.

Table 4.3: Avifauna recorded along survey transects and at three selected point count locations at She Shan River.

Table 4.4: Odonata species recorded at the She Shan River.

Table 4.5: Aquatic Macro invertebrates recorded at She Shan River.

Table 4.6: Fish species and Hong Kong Newt recorded at She Shan River.

Table 4.7: Abiotic data for She Shan River.

1 Introduction

- 1.1 Agreement No. CE65/2013(EP) Post-Construction Ecological Monitoring of River Improvement Work in Upper Lam Tsuen River, She Shan River and Upper Tai Po River – Investigation required a post-construction ecological monitoring programme when the project completed. The collected data are mainly used to assess ecological recovery process and effectiveness of ecological migration proposed and enforced during the construction period.
- 1.2 The scope of the ecological monitoring was detailed in EM & A Manual of the project. In brief, the survey aimed to collect data on abiotic factors such as water quality, substratum characteristics, water flow as well as flora and fauna.
- 1.3 China Hong Kong Ecology Consultants Ltd. was committed by Allied Environmental Consultants Ltd (AEC) to undertake the ecological monitoring tasks for the project from December 2014.
- 1.4 This is the number 39 post-construction ecological monitoring report for the project conducted **on 15th of March 2017**. It contains the following subsections:
 - Summary of major points
 - Monitoring Methods and Results
 - Summary and Comments

2 Summary of Major Points

- Field ecological monitoring was undertaken **on 15th of March 2017**;
- Fauna and flora along the drainage project sections is in a process of re-establishing or restoration;
- Fish abundance was similar to last month with slight increase;
- Bird diversity and abundance was in natural fluctuation;
- Odonata abundance is low; and
- Hong Kong Newt was found during the survey.

3 Monitoring Methodology

3.1 Riparian Vegetation

Riparian vegetation, including aquatic and emergent, was sampled using line transects along the affected river channel and riparian habitat. Species, relative abundance and average heights were recorded. Vegetation survey was conducted at three selected belt transects located at the upper (T1), middle (T2) and lower portion (T3) of the river channel respectively (**Figure 1**). The belt transects was run across the river channel in order to collect quantitative data of vegetation, e.g., species inventory, height, percentage cover. Qualitative data of plants was collected by recording plant species along line transect, e.g., species inventory, relative abundance. Nomenclature and protection status of the species has followed those documented in the Lai *et al.* (2004) and Hong Kong Herbarium (2015).

3 Avifauna

Avifauna survey was conducted during the post construction monitoring period. Special attention was given to those stream channel area which birds used as feeding and foraging habitat. Avifauna surveys were undertaken in the early morning plus species recorded in the rest of the day when conducting other taxonomic groups (benthic, fish, insect) monitoring. Numerical abundance was recorded at fixed count points within a radius of 30 to 50m according to landscape feature and visual penetration extent. The duration of the point count of birds was standardized for 10 minutes at each location in order to collect comparable data. Transect count along accessible section of river channel were used in order to collect qualitative data. Binoculars and digital camera were the main items of equipment used. Nomenclature and protection status of the species has followed in the AFCD website (www.hkbiodiversity.net) and Carey *et al.* (2001).

The point count was conducted at three locations located at the lower (T3), middle (T2) and upper (T1) portion of the river channel respectively. The point count and survey transect locations for the bird survey and sampling sites for surveys of other faunal groups and flora were presented in **Figure 1**.

3.3 Adult Odonata Survey

Adult Odonata survey was conducted along transects (**Figure 1**). Binoculars, digital camera and hand net were utilized to aid identification. Numerical abundance, species identity and other notable behavior were recorded. Nomenclature and protection status of the species has followed those documented in the AFCD website (www.hkbiodiversity.net), Wilson *et al.* (2004) and Tam *et al.* (2011). Adult Odonata survey was conducted along line transects in parallel with river channel within the works area where access was permitted.

3.4 Aquatic Macro-invertebrates

Macro-invertebrates in the riverbed were surveyed. Four sampling sites were selected to collect necessary macro-invertebrate fauna for ecological monitoring information, which covered upper (T1), middle (T2) and lower (T3) sections of the river respectively, as well as reference site (**Figure 1**). Five replicates were taken at each sampling point and pool together for further sample process. Kick sampling and hand netting were the survey methodologies for stream organisms. Dissection microscope and digital camera were used to aid identification and enumeration. Numerical abundance, species identity was recorded. Nomenclature and protection status of the species has followed those documented in the AFCD website (www.hkbiodiversity.net), and other literatures such as Dudgeon (1994).

3.5 Fish Population and Hong Kong Newt

Fish community at the specified river channel was monitored by live trapping, hand netting and direct observation methods. Hong Kong newt was surveyed by direct observation and hand netting as well.

Sampling was conducted at four proposed sampling locations at upper (T1), middle (T2), lower (T3) sections and reference site respectively. Those

sampling sites covered major type of stream habitats, e.g. river pool and riffle (**Figure 1**). The number of the observed fish was estimated and recorded. Nomenclature and protection status of the species has followed those documented in the AFCD website (www.hkbiodiversity.net) and Lee *et al.* (2004).

3.6 Abiotic Data Collection

3.6.1 Water Quality Monitoring

Dissolved oxygen level, pH value, conductivity, salinity, BOD and nutrient level (nitrate and ammonium) were sampled and analyzed by conventional methods in situ or in laboratory. The instruments for measuring dissolved oxygen level, pH value, conductivity, salinity were model: DO-5510, AZ8685, AZ8361 and AZ8374 respectively. All the instruments were calculated every monitoring month according to the operation manuals in order to obtain the precise result. BOD test took 5 days to complete within darkness incubator with stable temperature at 20°C and was performed using model: DO-5510 for measuring dissolved oxygen. Nutrient levels including nitrate and ammonia were performed in laboratory by applying the In-house method SOP056 (FIA) and SOP057 (FIA) respectively.

3.6.2 Sediment Characteristics

Sediment/substrate characteristics were recorded of sediment cover in percentage e.g. mud, sand, rock, boulder and cemented bottom in the stream bed at sampling sites.

3.6.3 Water Flow

Water flow rates in river channel were measured by recording the time taken for a floating object (e.g. floating ball) in a measured distance. The sampling locations for surveys were presented in **Figure 1**.

4 Monitoring Results

4.1 Vegetation

In total, 78 flora species was recorded within the survey transects along the river course. The recorded floras were generally common wetland species. The height of the dominated riparian grass and herb species were in a range from 0.2m to 0.6m as observed along survey transect. Dominant flora species were shown in the **Table 4.1** marked with relative abundance sign “+++”. Vegetation has partially covered the river bed in middle and lower sections (Photos 1-2) and generally covered the riverbed and riparian habitat in upper sections (Photo 3). Aquatic plants *Brachiaria mutica* was the most abundant plants found along the river channel. *Mucuna championii* and *Cibotium barometz* are classified as endangered and vulnerable in China respectively, and were recorded in the woodland adjacent to She Shan River. *Cibotium barometz* is also classified as category II in wild plant under state protection. Results of vegetation survey and belt transect survey were presented in **Table 4.1** and **Table 4.2**. **Figure 1** shows the transect line for the flora surveys.

4.2 Fauna

4.2.1 Avifauna

An avifauna survey was undertaken along survey transects and at three selected point count locations. In total, 22 species of birds were recorded during the bird surveys within project area. 6 recorded species were wetland dependant birds and observed foraging in the river channel including *Egretta garzetta*, *Ardeola bacchus* (Photo 4), *Motacilla cinerea*, *Amaurornis phoenicurus*, *Alcedo atthis* (Photo 5) and *Motacilla alba*. The dominant species of the river was a common species *Pycnonotus jocosus*. All the birds in Hong Kong are under protection of Wild Animals Protection Ordinance (Cap. 170). Some of wetland dependent species with conservation interest including *Ardeola bacchus* and *Egretta garzetta* were observed foraging in the river. *Ardeola bacchus* and *Egretta garzetta* are considered as Regional Concern by Fellowes *et al.* (2002). Call of *Centropus sinensis* was heard from the adjacent habitat during the survey period, this species is considered as vulnerable in China Red Data Book Status. *Milvus lineatus*, a raptor species, was observed hovering above the river. This species is protected under Endangered Species of Animals and Plants Ordinance (Cap. 586) and classified as Regional Concern by Fellowes *et al.* (2002). Except foraging and roosting behaviour of some birds were observed, no other remarkable behaviour was noticed. Transect and Point Count locations were shown on **Figure 1**. Result of bird survey was presented in the **Table 4.3**.

4.2.2 Adult Odonata Survey

Odonata survey was performed and a list of recorded odonata species at She Shan River is shown in **Table 4.4**. The number of odonata species was still low, but the species abundance is obviously increasing. Most of the odoanta species in Hong Kong has the peak emergence from spring to late summer. Low abundance of odoanta was due to seasonality. It is expected that number of odonata will keep increasing in the following months during wet season (Wilson *et al.*, 2004 & Tam *et al.*, 2011). A total of 6 species was recorded, those recorded species were mostly common species in Hong Kong. The result of this month was similar to approximate period of last year. Mating behavior was not noticed during the survey. Sampling location was shown on **Figure 1**.

4.2.3 Aquatic Macro-invertebrates

Survey of aquatic marco-invertebrates was carried out (Photo 7). The river benthic fauna collected was mainly comprised of insects, mollusks and crustaceans (Photos 9&10). Details of recorded benthic fauna refer to **Table 4.5**. Sampling location was shown on **Figure 1**.

4.2.4 Hong Kong Newt

Survey of Hong Kong Newt was performed (Photo 7). A larva of Hong Kong Newt was recorded during the survey (Photo 8), indicating that She Shan River is a breeding site of Hong Kong Newt. Hong Kong Newt is listed in Wild Animals Protection Ordinance (Cap. 170) and classified as “Near Threatened” under IUCN Red List Status and as “Potential Global Concern” by Fellowes *et al.* (2002). Record of Hong Kong Newts can be referred to **Table 4.6**.

4.2.5 Fish Fauna

Fish surveys were performed at She Shan River and total 12 species of freshwater fish were recorded. Native fish *Zacco platypus* and *Oreochromis niloticus* were abundant species dominating in the river channel. Among the recorded fish, *Parazacco spilurus* is classified as “Vulnerable” in Red China Data Book, it was commonly observed along the river with low abundance. The number of fish recorded is similar to the record of last month with slight increase. Details of recorded of fish fauna refers to **Table 4.6**. Sampling location was shown on **Figure 1**.

4.3 **Abiotic Data**

Data on water quality and major stream hydrological feature (water flow and substratum) of the stream were collected and are presented in the **Table 4.7**.

Generally, the water was not polluted and nutrient levels were low even though there were cultivation activities observed nearby the river. Results of water test are presented in the **Table 4.7**.

The river substratum was comprised of over 30-80% stones or rocks in large proportion of the river sections with slow water flow (up to 0.2m/second at pool and 0.5m/second at riffle).

5 **Summary and Commentary**

Ecological monitoring was carried out in current months and relevant biotic and abiotic data were collected according to project specification and EM & A Manual. Hong Kong New was recorded during the survey. The rest of fauna was in a natural fluctuation. Low abundance and diversity of odonata was recorded due to seasonality.

Aquatic plants and riparian vegetation were generally established at new drainage channel. Vegetation has generally covered the riverbed and gabion in upper section and partially covered the rest portion of the river.

Water was not polluted and nutrient levels were low to moderate.

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FIGURE

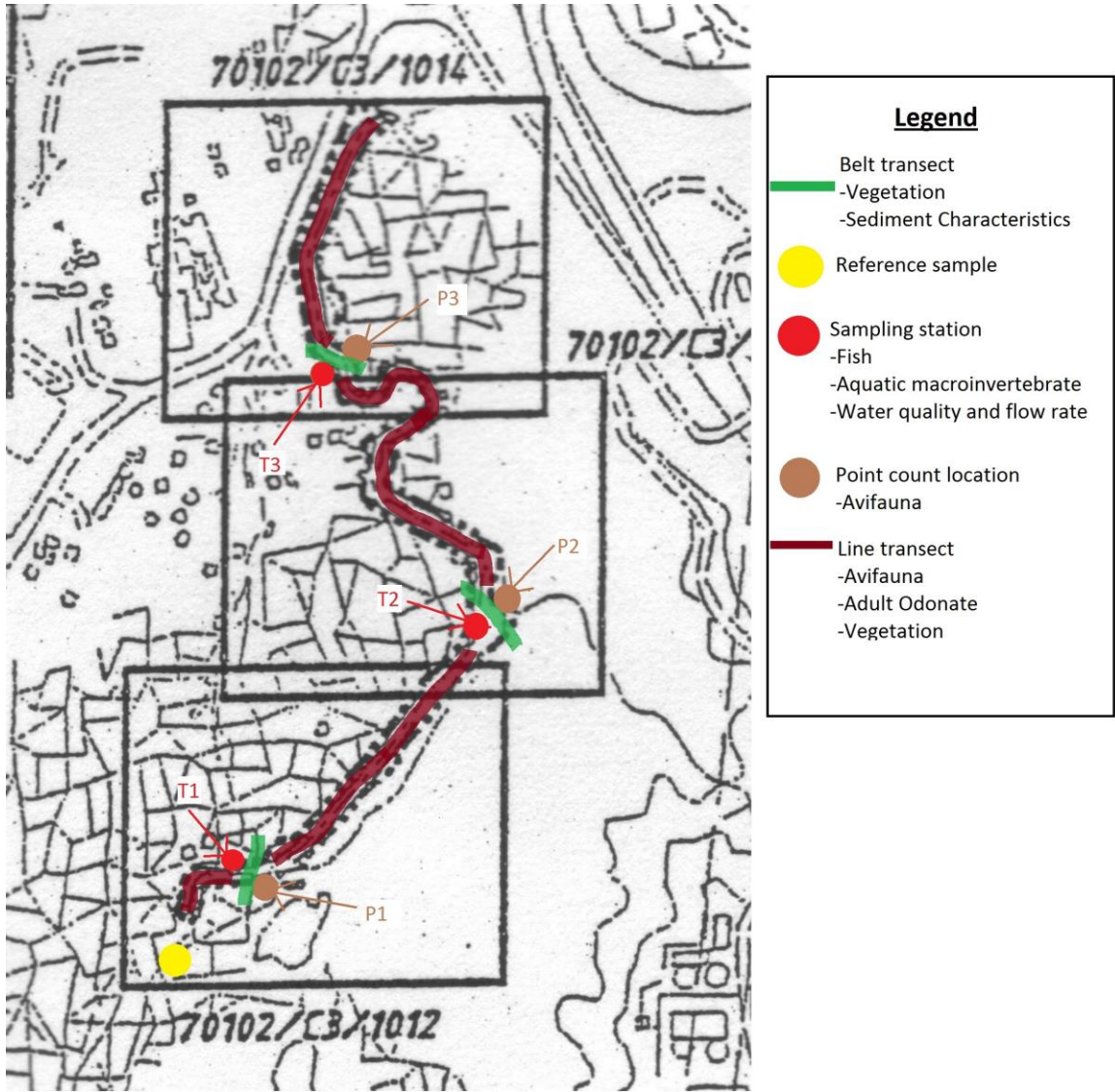


Figure 1. Sampling Location of Ecological Survey and Monitoring at She Shan River, Tai Po.

PHOTOS



Photo 1: General view of the river habitat (Lower section)



Photo 2: General view of the river habitat (Middle section)



Photo 3 : General view of the river habitat (Upper section)



Photo 4 : Avifauna –*Ardeola bacchu*

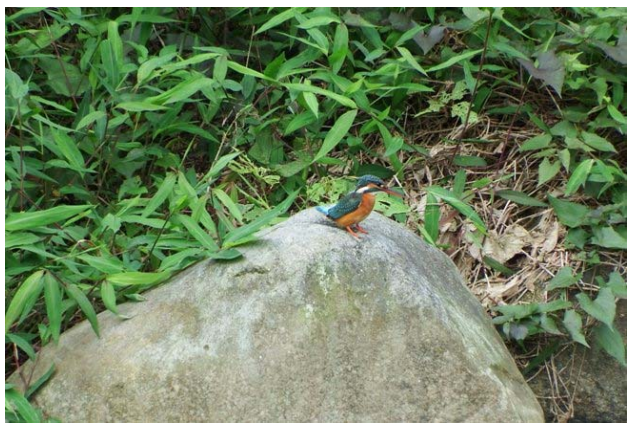


Photo 5 : Avifauna –*Alcedo atthis*



Photo 6 : Avifauna –*Milvus lineatus*



Photo 7: Kick Sampling



Photo 8: Hong Kong Newt Larva



Photo 9: Aquatic sample



Photo 10: Aquatic sample

TABLE

Table 4.1. Flora species recorded along the She Shan River including riparian habitat.

| Family | Species name | Chinese name | Conservation Status | Post construction monitoring | | | | | Post construction monitoring | | | | | | | | | | | | | |
|------------------------|----------------------------------|--------------|---------------------|------------------------------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | Aug-15 | Sep-15 | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 |
| Malvaceae | <i>Hibiscus rosa-sinensis</i> | 大紅花 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Mimosaceae | <i>Mimosa pudica</i> | 含羞草 | | | | | | | | | | | | | | | | | | | | |
| Mimosaceae | <i>Leucaena leucocephala</i> | 銀合歡 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Mimosaceae | <i>Calliandra haematocephala</i> | 紅絨球 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Moraceae | <i>Broussonetia papyrifera</i> | 構樹 | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Moraceae | <i>Ficus pumila</i> | 薜荔 | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus variolosa</i> | 變葉榕 | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + | |
| Moraceae | <i>Ficus variegata</i> | 青果榕 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Musaceae | <i>Musa paradisiaca</i> | 大蕉 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Myrsinaceae | <i>Maesa perlianus</i> | 鱒魚胆 | | | | | | | | | | | | | | | | | | | | |
| Myrtaceae | <i>Cleistocalyx operculatus</i> | 水翁 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Onagraceae | <i>Ludwigia hyssopifolia</i> | 草龍 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Oxalidaceae | <i>Averrhoa carambola</i> | 楊桃 | | | | | | | | | | | | | | | | | | | | |
| Oxalidaceae | <i>Oxalis corniculata</i> | 酢醬草 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Oxalidaceae | <i>Oxalis debilis</i> | 紅花酢醬草 | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| Plantaginaceae | <i>Plantago major</i> | 車前草 | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Panicum maximum</i> | 大黍 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Panicum repens</i> | 枯草 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ | +++ |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Digitaria radicata</i> | 紅尾翎 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Poaceae | <i>Imperata cylindrica</i> | 大白茅 | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| Portulacaceae | <i>Portulaca oleracea</i> | 馬齒莧 | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| Polygonaceae | <i>Polygonum hydropiper</i> | 水蓼 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Polygonaceae | <i>Polygonum glabrum</i> | 光薺 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Polygonaceae | <i>Polygonum chinense</i> | 火炭母 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Polygonaceae | <i>Rumex trisetifer</i> | 假菠菜 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Polygonaceae | <i>Polygonum lapathifolium</i> | 大馬蓼 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Polygonaceae | <i>Polygonum multiflorum</i> | 何首烏 | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| Rubiaceae | <i>Hedyotis corymbosa</i> | 傘房花耳草 | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| Rubiaceae | <i>Hedyotis hedyotidea</i> | 牛白藤 | | | | | | | | | | | | | | | | | | | | |
| Sapindaceae | <i>Dimocarpus longan</i> | 龍眼 | | | | | | | | | | | | | | | | | | | | |
| Solanaceae | <i>Solanum torvum</i> | 水茄 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Solanaceae | <i>Solanum americanum</i> | 少花龍葵 | | | | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Ulmaceae | <i>Celtis timorensis</i> | 樟葉朴 | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Trema orientalis</i> | 異色山黃麻 | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Trema tomentosa</i> | 山黃麻 | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| Urticaceae | <i>Pilea microphylla</i> | 透明草 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Urticaceae | <i>Pouzolzia zeylanica</i> | 霧水葛 | | | | | | | | | | | | | | | | | | | | |
| Verbenaceae | <i>Vitex quinata</i> | 山牡荊 | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum perfoliatum</i> | 杠板歸 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Verbenaceae | <i>Lantana camara</i> | 馬纓丹 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Floating Plant | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Pistia stratiotes</i> | 大漂 | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Lemnaceae | <i>Lemna minor</i> | 浮萍 | | | | | | | | | | | | | | | | | | | | |
| Submerged Plant | | | | | | | | | | | | | | | | | | | | | | |
| Hydrocharitaceae | <i>Hydrilla verticillata</i> | 黑藻 | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| No. of Species | | | | 59 | 59 | 61 | 61 | 61 | 62 | 62 | 77 | 77 | 77 | 77 | 77 | 80 | 80 | 80 | 80 | 80 | 78 | 78 |

Note:
 “+” – Species exists in the study area
 “++” – Species common in the study area
 “+++” – Species abundant/dominant in study area
 EN- Endangered in China

Table 4.2. Flora species recorded from belt transect survey at the She Shan River

(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Family | Species | Stream | Chinese name | Baseline monitoring | | | | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|------------------------------------|--------|--------------|---------------------|----|---|--------|----|---|-------------------|----|----|-------------------|----|----|-------------------|----|----|-------------------|----|----|-------------------|----|----|-------------------|----|----|--------|----|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|---|--|----|--|-----|
| | | | | Jul-08 | | | Aug-08 | | | Jan-09 | | | Jul-09 | | | Jan-10 | | | Jul-10 | | | Jan-11 | | | Jul-11 | | | Jan-12 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | P1 | P3 | % | P1 | P3 | % | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | | 箭筈草 | 0.3 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum repens</i> | | 荻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | | 蕨甘菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus microcarpa</i> | | 細葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | | 剛秀竹 | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | | 芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | | 苧麻 | 1.5 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | | 白花鬼針草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | | 象草 | 3 | 50 | | 1 | 60 | | 3 | 80 | | 2 | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Cox lacryma-jobi</i> | | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Alternanthera philoxeroides</i> | | 空心蓮子草 | 0.2 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum maximum</i> | | 大黍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Broussonetia papyrifera</i> | | 構樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum chinense</i> | | 火炭母 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia hyssopifolia</i> | | 草龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | | 莎草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | | 巴拉草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Blechnaceae | <i>Blechnum orientale</i> | | 烏毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia macrorrhizos</i> | | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lemnaceae | <i>Lemna minor</i> | | 浮萍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum hydropiper</i> | | 水蓼 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus involucreatus</i> | | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea catrica</i> | | 五爪金龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Ground | | | | | | | | | | 98 | | 75 | | 30 | | ## | | 95 | | 10 | | 15 | | 70 | | ## | | 80 | | 15 | | 25 | | 15 | | 40 | | 93 | | 30 | | 10 | | ## | | 3 | | 15 | | 100 |

P1 - Point count location 1; P3 - Point count location 3

Table 4.2. Flora species recorded from belt transect survey at the She Shan River

(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Family | Species | Chinese name | Impact monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|------------------------------------|--------------|-------------------|----|-----|--------|----|-----|------------------------------|-----|----|--------|-----|-----|------------------------------|-----|-----|--------|-----|-----|------------------------------|-----|-----|--------|-----|-----|------------------------------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | Jul-12 | | | Jul-13 | | | Dec-13 | | | Jan-14 | | | Feb-14 | | | Mar-14 | | | Apr-14 | | | May-14 | | | Jun-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 箭筈草 | 0.3 | 2 | 0.3 | 30 | | | | 0.3 | 15 | | | | | 0.1 | 10 | 0.5 | 30 | 0.1 | 1 | 0.2 | 15 | 0.5 | 30 | 0.2 | 1 | 0.2 | 20 | 0.5 | 30 | 0.2 | 5 | 0.3 | 20 | 0.5 | 35 | 0.3 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum repens</i> | 林竹草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 蕺菜 | 0.2 | 2 | | | | | | | | | | | | 0.1 | 10 | | | 0.2 | 1 | 0.1 | 10 | | | 0.2 | 1 | 0.1 | 10 | | | 0.2 | 1 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | 0.3 | 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus microcarpa</i> | 細葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | 0.8 | 30 | | | | | | 0.8 | 35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | | 0.3 | 10 | | | | | | | 0.3 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | 2.5 | 1 | 2.5 | 5 | | | | 2.5 | 5 | | | 1.5 | 10 | 1.5 | 10 | | | | | | | 1.5 | 10 | 1.5 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Cox lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Alternanthera philoxeroides</i> | 空心蓮子草 | | | | 0.1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum maximum</i> | 大黍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Broussonetia papyrifera</i> | 構樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum chinense</i> | 火炭母 | 0.2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia hyssopifolia</i> | 草龍 | | | | | | | | | | 0.3 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | 1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | 1 | 15 | | 1 | 10 | 1 | 20 | | | 1 | 50 | | | 1.5 | 60 | 0.8 | 20 | 1.5 | 60 | 0.8 | 20 | 1.5 | 55 | 0.8 | 25 | 1.5 | 60 | 0.8 | 30 | 1.5 | 50 | 1 | 50 | 1.5 | 40 | 1 | 40 | 1.5 | 45 | 1 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Blechnaceae | <i>Blechnum orientale</i> | 烏毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 象尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 20 | | | 2 | 15 | | | 2 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia macrorrhizos</i> | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lemnaceae | <i>Lemna minor</i> | 浮萍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum hydropiper</i> | 水蓼 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus involucratus</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | 0.8 | 3 | | | | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea catrica</i> | 五爪金龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Ground | | | | | | | 93 | | 20 | | 50 | | | 65 | | 5 | | 94 | | 10 | | 10 | | 94 | | | | 5 | | | | 8 | | | | 90 | | | | 0 | | | | 5 | | | | 84 | | | | 30 | 25 | | | 84 | | | | 25 | 15 | | | 84 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

P1 – Point count location 1; P3 – Point count location 3

Table 4.2. Flora species recorded from belt transect survey at the She Shan River
(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Family | Species | Chinese name | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | | | | | | |
|----------------|------------------------------------|--------------|------------------------------|-----|----|------------------------------|-----|----|------------------------------|-----|----|------------------------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|------------------------------|----|-----|-----|-----|-----|----|--|----|
| | | | Jul-14 | | | Aug-14 | | | Sep-14 | | | Oct-14 | | | Nov-14 | | | Dec-14 | | | Jan-15 | | | Feb-15 | | | Mar-15 | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 箭筈草 | | 0.5 | 25 | | | | | | | | 1 | 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum repens</i> | 結骨草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 蕨甘菊 | 0.3 | 10 | | 0.3 | 12 | | 0.3 | 12 | | 0.3 | 5 | | 0.3 | 12 | | 0.3 | 5 | | 0.3 | 12 | | 0.3 | 12 | | 0.3 | 12 | | 0.3 | 12 | | 0.3 | 12 | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | 0.3 | 2 | | 0.3 | 2 | | 0.3 | 1 | | 0.3 | 1 | | 0.3 | 1 | | 0.3 | 1 | | 0.3 | 1 | | 0.3 | 1 | | 0.3 | 1 | | 0.3 | 1 | | 0.3 | 1 | | | | |
| Moraceae | <i>Ficus microcarpa</i> | 細葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | 0.3 | 5 | | 0.8 | 2 | | 0.3 | 5 | | 0.8 | 5 | | 0.5 | 5 | | 0.8 | 5 | | 1 | 2 | | 0.5 | 5 | | 0.8 | 10 | | 1 | 2 | | 0.5 | 5 | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Cox lacryma-jobi</i> | 薹草 | | | | 0.8 | 1 | | | 1.2 | 1 | | | 1.5 | 1 | | | 1.5 | 1 | | | 1.5 | 1 | | | 1.5 | 1 | | | 1.5 | 1 | | | 1.5 | 1 | | | |
| Amaranthaceae | <i>Alternanthera philoxeroides</i> | 空心蕒子草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum maximum</i> | 大黍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Broussonetia papyrifera</i> | 構樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum chinense</i> | 火炭母 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia hyssopifolia</i> | 草龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | 1.5 | 45 | | 1 | 45 | | | 1.5 | 50 | | 1 | 50 | | | 1.8 | 65 | | 1.8 | 20 | | 1.5 | 5 | | 1.8 | 70 | | 1.8 | 25 | | 1.5 | 8 | | 1.8 | 70 | | |
| Blechnaceae | <i>Blechnum orientale</i> | 烏毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | 2 | 12 | | | | | 2 | 10 | | | | | 2 | 15 | | 3 | 5 | | | 2 | 10 | | 3 | 2 | | | 2 | 10 | | 3 | 2 | | | | | |
| Araceae | <i>Alocasia macrorrhizos</i> | 海芋 | | | | 0.8 | 1 | | | 0.8 | 1 | | | 0.8 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Lemnaceae | <i>Lemna minor</i> | 浮萍 | | | | N.A | 1 | | | N.A | 1 | | | N.A | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum hydropiper</i> | 水蓼 | | | | | | | | | | | 1 | 3 | | | | | 1 | 1 | | | | | 1 | 1 | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus involucreatus</i> | 風車草 | | | | | | | | | | | | 1.7 | 2 | | | | | | | | 1.7 | 1 | | | | | 1.5 | 5 | | | | 1.5 | 5 | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | 1 | 4 | | | 1 | 6 | | | 1 | 6 | | 1.5 | 1 | | 2 | 5 | | 1.5 | 1 | | | 2 | 5 | | | | | 2 | 10 | | | | |
| Convolvulaceae | <i>Ipomoea catrica</i> | 五爪金龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Ground | | | | 31 | | 15 | | 87 | | 27 | | 8 | | # | | 27 | | 8 | | 80 | | 2 | | 0 | | 75 | | 2 | | 1 | | 72 | | 2 | | 1 | | 72 |

P1 - Point count location 1; P3 - Point count location 3

Table 4.2. Flora species recorded from belt transect survey at the She Shan River

(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Family | Species | Stream | Chinese name | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | | | | | | |
|----------------|------------------------------------|--------|--------------|------------------------------|-----|-----|--------|-----|----|------------------------------|----|----|--------|-----|----|------------------------------|----|-----|--------|----|----|------------------------------|-----|----|--------|----|----|------------------------------|-----|----|--------|----|----|--------|-----|---|--------|---|--|
| | | | | Jan-16 | | | Feb-16 | | | Mar-16 | | | Apr-16 | | | May-16 | | | Jun-16 | | | Jan-16 | | | Feb-16 | | | Mar-16 | | | Apr-16 | | | May-16 | | | Jun-16 | | |
| | | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | | 箭筈草 | | 0.3 | 5 | 0.2 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum repens</i> | | 荻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | | 蕨甘菊 | | 0.5 | 10 | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | | 西洋菜 | | | 0.3 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus microcarpa</i> | | 細葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | | 剛秀竹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | | 芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | | 白花鬼針草 | | 1 | 30 | | | | 1 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Cox lacryma-jobi</i> | | 薏苡 | | 1 | 2 | | | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Alternanthera philoxeroides</i> | | 空心蓮子草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum maximum</i> | | 大黍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Broussonetia papyrifera</i> | | 楮樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum chinense</i> | | 火炭母 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia hyssopifolia</i> | | 草龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | | 莎草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | | 巴拉草 | | 0.3 | 15 | 1 | 5 | | 0.3 | 15 | 1 | 5 | | 1 | 5 | | 0.3 | 15 | 1 | 5 | | 0.3 | 15 | 1 | 5 | | 1 | 10 | | 0.3 | 15 | 1 | 5 | | 1 | 10 | | |
| Blechnaceae | <i>Blechnum orientale</i> | | 烏毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia macrorrhizos</i> | | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lemnaceae | <i>Lemna minor</i> | | 浮萍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum hydropiper</i> | | 水蓼 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus involucreatus</i> | | 風車草 | | | 1.2 | 5 | 0.4 | 2 | | | | | 1.2 | 5 | 0.4 | 2 | | | | | | | | | | | | 1.2 | 5 | 0.4 | 5 | | | 1.2 | 5 | 0.4 | 5 | |
| Onagraceae | <i>Ludwigia erecta</i> | | 美洲水丁香 | | | | 0.3 | 5 | | | | | | | | 0.3 | 5 | | | | | | | | | | | | | | | | | | | | 0.3 | 5 | |
| Convolvulaceae | <i>Ipomoea catrica</i> | | 五爪金龍 | | | 0.3 | 5 | | | | | | | | | 0.3 | 5 | | | | | | | | | | | | | | | | | | | | 0.3 | 5 | |
| Bare Ground | | | | | 43 | | 70 | | | 83 | | | | 43 | | 70 | | | | 83 | | | | | | | 38 | | 70 | | | | | | | | 83 | | |

P1 - Point count location 1; P3 - Point count location 3

Table 4.2 (Continuous). Flora species recorded from belt transect survey at the She Shan River

(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Family | Species | Chinese name | Post construction monitoring | | | | | | | | | Post construction monitoring | | | | | | | | | Post construction monitoring | | | | | | | | | Post construction monitoring | | | | | | | | | Post construction monitoring | | | | | | | | |
|----------------|------------------------------------|--------------|------------------------------|----|-----------|--------|-----------|----|-----------|----|-----------|------------------------------|-----------|-----|-----------|----|-----------|--------|-----------|----|------------------------------|----|-----------|--------|-----------|----|-----------|-----|-----------|------------------------------|-----------|-----|-----------|-----|-----------|--------|-----|----|------------------------------|--|--|--|--|--|--|--|--|
| | | | Jul-16 | | | Aug-16 | | | Sep-16 | | | Oct-16 | | | Nov-16 | | | Dec-16 | | | Jul-16 | | | Aug-16 | | | Sep-16 | | | Oct-16 | | | Nov-16 | | | Dec-16 | | | | | | | | | | | |
| | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 箭筈草 | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | | | | | | | | | | | |
| Poaceae | <i>Panicum repens</i> | 荻草 | | | 0.3 | 5 | 0.2 | 8 | | | 0.3 | 5 | 0.2 | 8 | | | 0.5 | 15 | 0.3 | 8 | | | 0.5 | 15 | 0.5 | 8 | | | 0.6 | 15 | 0.6 | 8 | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 蕨甘菊 | | | | | | | | | 0.5 | 3 | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus microcarpa</i> | 細葉榕 | | | 0.3 | 5 | | | | | 0.3 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 蘭香竹 | | | 0.3 | 5 | 0.3 | 15 | | | 0.3 | 5 | 0.3 | 15 | | | 0.4 | 10 | 0.4 | 15 | | | 0.5 | 10 | 0.5 | 15 | | | 0.6 | 10 | 0.5 | 15 | | 0.1 | 10 | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | 1 | 15 | | | | | 1 | 15 | | | | 1.3 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Alternanthera philoxeroides</i> | 空心蓮子草 | 1 | 10 | | | | | 1 | 10 | | | | 1 | 10 | | | | | | | | | | | | | | | | | | | 0.1 | 10 | | | | | | | | | | | | |
| Poaceae | <i>Panicum maximum</i> | 大黍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Broussonetia papyrifera</i> | 檣樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum chinense</i> | 火炭母 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia hyssopifolia</i> | 草龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | | 0.4 | 10 | 0.5 | 25 | | | 0.4 | 15 | 0.5 | 20 | | | 0.4 | 15 | 0.5 | 20 | | | 0.5 | 15 | 0.5 | 20 | | | 0.6 | 15 | 0.6 | 20 | | 0.1 | 15 | 0.1 | 20 | | | | | | | | | | |
| Blechnaceae | <i>Blechnum orientale</i> | 烏毛蕨 | 0.3 | 15 | 1 | 5 | 1 | 10 | 0.3 | 15 | 1 | 10 | 1 | 10 | 0.3 | 15 | 1 | 10 | 1 | 10 | 0.4 | 15 | 1 | 10 | 1 | 10 | 0.5 | 15 | 1 | 10 | 1 | 10 | 0.1 | 15 | 0.1 | 10 | 0.1 | 10 | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia macrorrhizos</i> | 海芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lemnaceae | <i>Lemna minor</i> | 浮萍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum hydropiper</i> | 水蓼 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus involucratus</i> | 風車草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea cairica</i> | 五爪金龍 | | | 0.2 | 5 | 0.3 | 5 | | | 0.2 | 5 | 0.3 | 5 | | | 0.2 | 5 | 0.3 | 5 | | | 0.2 | 5 | 0.3 | 5 | | | 0.3 | 5 | 0.4 | 5 | | 0.1 | 5 | 0.1 | 5 | | | | | | | | | | |
| Bare Ground | | | | | 0.3 | 5 | | | | | 0.3 | 5 | | | | | 0.3 | 5 | | | | | 0.3 | 5 | | | | 0.4 | 5 | | | 0.4 | 5 | | | | | | | | | | | | | | |
| | | | | | 60 | | 65 | | 37 | | 57 | | 50 | | 42 | | 60 | | 45 | | 42 | | 60 | | 45 | | 42 | | 60 | | 45 | | 42 | | 75 | | 60 | | 65 | | | | | | | | |

P1 - Point count location 1; P3 - Point count location 3

Table 4.2 (Continuous). Flora species recorded from belt transect survey at the She Shan River

(T1- Upper stream section,T2 - middle stream section and T3 - Lower stream section)

| Family | Species | Chinese name | Post construction monitoring | | | | | | | | | Post construction monitoring | | | | | | | | | Post construction monitoring | | | | | | | | |
|----------------|------------------------------------|--------------|------------------------------|----|-----------|--------|-----------|----|-----------|----|-----------|------------------------------|-----------|----|-----------|----|-----------|--------|-----------|----|------------------------------|----|-----------|--------|-----------|-----|-----------|----|----|
| | | | Jan-17 | | | Feb-17 | | | Mar-17 | | | Jan-17 | | | Feb-17 | | | Mar-17 | | | Jan-17 | | | Feb-17 | | | Mar-17 | | |
| | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 |
| Commelinaceae | <i>Commelina diffusa</i> | 箭筈草 | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | Height(m) | % | |
| Poaceae | <i>Panicum repens</i> | 荻草 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Mikania micrantha</i> | 微甘菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brassicaceae | <i>Nasturtium officinale</i> | 西洋菜 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus microcarpa</i> | 細葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛香竹 | | | 0.2 | 10 | | | | | 0.3 | 10 | | | | | | | | | | | | 0.4 | 12 | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urticaceae | <i>Boehmeria nivea</i> | 苧麻 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | | | | | | | 0.2 | 2 | | | | | | | | | | | | | 0.3 | 5 | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Alternanthera philoxeroides</i> | 空心蓮子草 | 0.2 | 10 | | | | | | | 0.3 | 10 | | | | | | | | | | | | | 0.5 | 10 | | | |
| Poaceae | <i>Panicum maximum</i> | 大黍 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Broussonetia papyrifera</i> | 構樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum chinense</i> | 火炭母 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia hyssopifolia</i> | 草龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Miscanthus floridulus</i> | 五節芒 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | | 0.2 | 15 | 0.2 | 20 | | | 0.3 | 20 | 0.3 | 20 | | | | | | | | | | 0.6 | 25 | 0.6 | 25 | | |
| Blechnaceae | <i>Blechnum orientale</i> | 烏毛蕨 | 0.2 | 15 | 0.2 | 10 | 0.2 | 10 | 0.3 | 15 | 0.2 | 10 | 0.2 | 10 | 0.3 | 15 | 0.3 | 15 | 0.3 | 15 | 0.3 | 15 | 0.3 | 15 | 0.3 | 15 | 0.3 | 15 | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia macrorrhizos</i> | 海芋 | | | | | | | | | | | 0.2 | 5 | 0.2 | 5 | | | | | | | | 0.2 | 5 | 0.3 | 5 | | |
| Lemnaceae | <i>Lemna minor</i> | 浮萍 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polygonaceae | <i>Polygonum hydropiper</i> | 水蓼 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus involucratu</i> | 風車草 | | | | | | | | | 0.3 | 5 | 0.3 | 5 | | | | | | | | | | 0.3 | 5 | 0.3 | 5 | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea cairica</i> | 五爪金龍 | | | 0.2 | 5 | 0.2 | 5 | | | 0.2 | 5 | 0.2 | 5 | | | | | | | | | | 0.2 | 5 | 0.2 | 5 | | |
| Bare Ground | | | | | 0.5 | 5 | | | | | 0.5 | 5 | | | | | | | | | | | | 0.3 | 5 | | | | |
| | | | | | 75 | | 60 | | 65 | | 75 | | 43 | | 55 | | 75 | | 28 | | | | | | | | 45 | | |

P1 – Point count location 1; P3 – Point count location 3

Table 4.3 Avifauna recorded along survey transects and at three selected point count locations at She Shan River.

(T1- Upper stream section, T2 - middle stream section and T3 - Lower stream section)

Table with 16 columns for monitoring periods (Baseline, Impact, Post construction) and 15 columns for locations (Jul-Aug, Jan-Jul, Dec, Jan-Apr). Rows list bird species like Ashy Drongo, Barn Swallow, Black Drongo, Black Kite, etc., with their status and abundance counts.

No. of species

Note: R - Resident; WV - Winter visitor; PM - Passage migrant; C - Common; U - Uncommon. SpM - Spring migrant; Sv - Summer visitor. C - transect count; P1 - Point count location 1; P3 - Point count location 3. +, occurred; ++, common; +++, abundant/dominant species in the study area. Commonness and status were decided according to AFCED biodiversity website (www.hkbiodiversity.net). All bird species are under protection of Wild Animals Protection Ordinance (Cap. 170). Endangered Species of Animals and Plants Ordinance (Cap. 586). RC: Regional concern; LC: Local Concern; PRC: Potential Regional concern; CR: Rare in China; VU: Vulnerable in China.

Table 4.4. Odonate species recorded at the She Shan River

| Species name | Common name | Chinese name | Status | Commonness | Baseline monitoring | | Impact monitoring | | | | Impact monitoring | | | | Post construction monitoring | | | | | | | Post construction monitoring | | | | | | | | | | | | | | |
|---|--------------------------|--------------|--------|------------|---------------------|--------|-------------------|--------|--------|--------|-------------------|--------|--------|--------|------------------------------|--------|--------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|--|
| | | | | | Jul-08 | Aug-08 | Jan-09 | Jul-09 | Jan-10 | Jul-10 | Jan-11 | Jul-11 | Jan-12 | Jul-12 | Jul-13 | Dec-13 | Jan-14 | Feb-14 | Mar-14 | Apr-14 | May-14 | Jun-14 | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | | | |
| <i>Agriocnemis pygmaea</i> | Wandering Midget | 黃尾小蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Brachythemis contaminata</i> | Asian Amberwing | 黃翅蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Burmagomphus vermicularis</i> | Dog-legged Clubtail | 鵬紋鐘春蜓 | P,LC | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Ceriatagrion auranticum ryukyuanum</i> | Orange-tailed Sprite | 琉球橘黃蝶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Copera ciliata</i> | Black-knees Featherlegs | 白狹扇蝶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Copera marginipes</i> | Yellow Featherlegs | 黃狹扇蝶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Crocothemis servilia servilia</i> | Crimson Darter | 紅蜻 | NP | VC | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Diplacodes trivialis</i> | Blue Percher | 紋藍小蜻 | NP | VC | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Ictinogomphus pertinax</i> | Common Flangetail | 箭王葉春蜓 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Ischnura senegalensis</i> | Common Bluetail | 褐斑異痣蝶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Nannophya pygmaea</i> | Scarlet Dwarf | 朱紅小蜻 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Neurobasis chinensis chinensis</i> | Chinese Greenwing | 華麗色蝶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Neurothemis fulvia</i> | Russet Percher | 網脈蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum chrysis</i> | Red-faced Skimmer | 華麗灰蜻 | NP | VC | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum glaucum</i> | Common blue skimmer | 黑尾灰蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum luzonicum</i> | Marsh Skimmer | 呂宋灰蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum pruinosum neglectum</i> | Common Red Skimmer | 赤褐灰蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum Sabina sabina</i> | Green Skimmer | 狹腹灰蜻 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pantala flavescens</i> | Wandering Glider | 黃蜻 | NP | VC | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Prodasineura autumnalis</i> | Black Threadtail | 烏齒原蝶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudagrion pruinosum fraseri</i> | Ferruginous-faced Sprite | 赤斑蝶 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudagrion rubriceps rubriceps</i> | Orange-faced Sprite | 丹頂斑蝶 | NP | UC | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Rhinocypha perforata perforata</i> | Common Blue Jewel | 三斑鼻蝶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Rhyothemis variegata arria</i> | Variiegated Flutterer | 斑麗翅蜻 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Trithemis aurora</i> | Crimson Dropwing | 曉褐蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Trithemis festiva</i> | Indigo Dropwing | 慶褐蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Zygonyx iris insignis</i> | Emerald Cascader | 彩虹蜻 | P,PG | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No of Species | | | | | 6 | 4 | 3 | 4 | 1 | 6 | 1 | 11 | 1 | 4 | 10 | 4 | 6 | 6 | 8 | 7 | 9 | 13 | 9 | 11 | 9 | 11 | 7 | 2 | 2 | 1 | 5 | 10 | 12 | | | |

Note: NP - Not protected in Hong Kong; P - Protected in Hong Kong
 "VC" - Very Common; "UC" - Uncommon; "C" - Common
 "+" - Species exists in the study area
 "++" - Species common in the study area
 "+++" - Species abundance in the study area
 Commonness and status were decided according to AFCD biodiversity website
 LC - Local Concern - Fellowes et al (2002)
 PGC - Potential Global Concern - Fellowes et al (2002)

Table 4.4. Odonate species recorded at the She Shan River

| Species name | Common name | Chinese name | Status | Commonness | Post construction monitoring | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------------|--------------|--------|------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | | Jun-15 | Jul-15 | Aug-15 | Sep-15 | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 |
| <i>Agriocnemis pygmalis</i> | Wandering Midget | 黃尾小蠅 | NP | VC | | | | | | | | | | | | | | | | | | | | | | |
| <i>Brachythemis contaminata</i> | Asian Amberwing | 黃翅蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | |
| <i>Burmagomphus vermicularis</i> | Dog-legged Clubtail | 駝紋鐘春蜓 | P, LC | C | | | | | | | | | | | | | | | | | | | | | | |
| <i>Ceriatagrion auranticum ryukyuanum</i> | Orange-tailed Sprite | 琉球橘黃蠅 | NP | VC | + | + | + | + | | | | | | | | | | | | | | | | | | |
| <i>Copera ciliata</i> | Black-knees Featherlegs | 白狹扇蠅 | NP | VC | | | | | | | | | | | | | | | | | | | | | | |
| <i>Copera marginipes</i> | Yellow Featherlegs | 黃狹扇蠅 | NP | VC | + | + | + | + | | | | | | | | | | | | | | | | | | |
| <i>Crocothemis servilia servilia</i> | Crimson Darter | 紅蜻 | NP | VC | + | + | + | + | + | + | | | | | | | | | | | | | | | | |
| <i>Diplacodes trivialis</i> | Blue Percher | 紋藍小蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | |
| <i>Ictinogomphus pertinax</i> | Common Flangetail | 箭王紫春蜓 | NP | C | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Ischnura senegalensis</i> | Common Bluetail | 褐斑異痣蠅 | NP | VC | | | | | | | | | | | | | | | | | | | | | | |
| <i>Nannophya pygmaea</i> | Scarlet Dwarf | 侏紅小蜻 | NP | C | | | | | | | | | | | | | | | | | | | | | | |
| <i>Neurobasis chinensis chinensis</i> | Chinese Greenwing | 華麗色蠅 | NP | VC | | | + | + | + | + | | | | | | | | | | | | | | | | |
| <i>Neurothemis fulvia</i> | Russet Percher | 網脈蜻 | NP | VC | + | + | + | + | + | | | | | | | | | | | | | | | + | + | |
| <i>Orthetrum chrysis</i> | Red-faced Skimmer | 華麗灰蜻 | NP | VC | | | + | + | + | + | | | | | | | | | | | | | | | + | |
| <i>Orthetrum glaucum</i> | Common blue skimmer | 黑尾灰蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum luzonicum</i> | Marsh Skimmer | 呂宋灰蜻 | NP | VC | + | + | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum prunosum neglectum</i> | Common Red Skimmer | 赤褐灰蜻 | NP | VC | + | + | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum Sabina sabina</i> | Green Skimmer | 狹腹灰蜻 | NP | C | | | | | + | + | | | | | | | | | | | | | | | | |
| <i>Pantala flavescens</i> | Wandering Glider | 黃蜻 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Prodasineura autumnalis</i> | Black Threadtail | 烏齒原蠅 | NP | VC | + | + | + | | | | | | | | | | | | | | | | | | | |
| <i>Pseudagrion prunosum fraseri</i> | Ferruginous-faced Sprite | 赤斑蠅 | NP | C | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudagrion rubriceps rubriceps</i> | Orange-faced Sprite | 丹頂斑蠅 | NP | UC | | | | | | | | | | | | | | | | | | | | | | |
| <i>Rhinocypha perforata perforata</i> | Common Blue Jewel | 三斑鼻蠅 | NP | VC | + | + | + | + | + | | | | | | | | | | | | | | | | + | |
| <i>Rhyothemis variegata arria</i> | Variiegated Flutterer | 斑麗翅蜻 | NP | C | + | + | + | + | + | | | | | | | | | | | | | | | | | |
| <i>Trithemis aurora</i> | Crimson Dropwing | 曉褐蜻 | NP | VC | + | + | + | + | + | + | | | | | | | | | | | | | | | + | |
| <i>Trithemis festiva</i> | Indigo Dropwing | 慶褐蜻 | NP | VC | + | + | + | + | + | + | + | | | | | | | | | | | | | | + | |
| <i>Zygonyx iris insignis</i> | Emerald Cascader | 彩虹蜻 | P, PG | VC | | | | | | | | | | | | | | | | | | | | | | |
| No of Species | | | | | 13 | 13 | 13 | 12 | 9 | 7 | 2 | 3 | 1 | 3 | 10 | 12 | 15 | 14 | 14 | 13 | 11 | 8 | 2 | 2 | 3 | 6 |

Note: NP – Not protected in Hong Kong; P - Protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” - Common
 “+” – Species exists in the study area
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 “+++” – Species abundance in the study area
 Commonness and status were decided according to AFCD biodiversity website
 LC- Local Concern - Fellowes *et al* (2002)
 PGC - Potential Global Concern - Fellowes *et al* (2002)

Table 4.5 Aquatic Macro invertebrates recorded at She Shan River.

(T1 - Upper stream section, T2 - middle stream section, T3 - Lower stream section)

| Species | Chinese name | Sampling location | | Baseline monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Post construction monitoring | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--------------|-------------------|------------|---------------------|--------------|--------------|--------------|-------------------|----|----|----|-------------------|----|----|----|-------------------|----|----|----|-------------------|----|----|----|-------------------|----|----|----|-------------------|----|----|----|-------------------|----|----|----|------------------------------|----|----|----|-----------|----|----|----|--------|---|---|---|--------|---|---|---|--------|--|--|--|
| | | Status | Commonness | Jul-08 | | Aug-08 | | Jan-09 | | | | Jul-09 | | | | Jan-10 | | | | Jul-10 | | | | Jan-11 | | | | Jul-11 | | | | Jan-12 | | | | Jul-12 | | | | Jan-13 | | | | Jul-13 | | | | Dec-13 | | | | Jan-14 | | | |
| | | | | Upper stream | Lower stream | Upper stream | Lower stream | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | | | | | | | | | | | | |
| Mollusks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Anodonta woodiana</i> | 新角無齒蚌 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Brotia hainanensis</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Corbicula fluminea</i> | 河蚌 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melanoidea tuberculata</i> | 縮褶黑螺 | NP | VC | + | + | + | ++ | + | + | + | + | + | + | + | + | + | + | + | ++ | ++ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Pomacea canaliculata</i> | 蘋果螺 | NP | VC | + | ++ | + | + | + | + | + | + | + | + | + | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | | | | | | | | | | | | |
| <i>Radix plicatulus</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | + | + | + | ++ | + | + | + | + | + | + | + | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | | | | | | | | | | | | | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Caenis sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Chironomus sp.</i> | 孑孓幼虫 | NP | VC | + | + | ++ | ++ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Euphaea sp.</i> | | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Indobaetis sp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | |
| <i>Odonate larvae</i> | | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum spp.</i> | -- | NP | VC | | | | | + | + | | | | | | + | + | | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | |
| <i>Pseudagrion spp.</i> | -- | NP | UC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudocloeon sp.</i> | -- | NP | VC | + | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Serratella sp.</i> | | NP | VC | + | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Crustaceans | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cryptopotamon anacoluthon</i> | 鯉刺溪蟹 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No of Species | | | | 12 | 12 | 12 | 12 | 9 | 0 | 7 | 11 | 9 | 0 | 0 | 12 | 10 | 0 | 11 | 0 | 10 | 8 | 14 | 4 | 10 | 9 | 9 | 8 | 10 | 10 | 9 | 7 | 11 | 7 | 6 | 5 | 9 | 8 | 7 | 5 | 11 | 8 | 7 | 6 | 11 | 8 | 8 | 7 | 11 | 8 | 8 | 7 | | | | |

Note: NP – Not protected in Hong Kong;

P - protected species in Hong Kong

“VC” – Very Common; “UC” – Uncommon; “C” - Common

“+” – Species exists in the study area

“++” – Species common in the study area

“+++” – Species abundance in the study area

- Reference point was the sampling location outside the works area used to compare the with the data within works area.

Table 4.5 Aquatic Macro invertebrates recorded at She Shan River.

(T1 - Upper stream section, T2 - middle stream section, T3 - Lower stream section)

| Species | Chinese name | Sampling location | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | | | | | |
|----------------------------------|--------------|-------------------|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|-----------|----|----|----|--------|----|----|---|--------|--|--|--|
| | | | | Feb-14 | | | | Mar-14 | | | | Apr-14 | | | | May-14 | | | | Jun-14 | | | | Jul-14 | | | | Aug-14 | | | | Sep-14 | | | | Oct-14 | | | | Nov-14 | | | | Dec-14 | | | | Jan-15 | | | | Feb-15 | | | |
| | | | | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | | | | | | | | |
| Mollusks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Anodonta woodiana</i> | 新角無齒蚌 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | -- | NP | VC | + | | | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | | | | |
| <i>Brotia hainanensis</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Corbicula fluminea</i> | 河蚌 | NP | VC | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | | |
| <i>Melanoides tuberculata</i> | 縮螺黑螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Pomacea canaliculata</i> | 縮螺黑螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Radix plicatulus</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Sinotata quadrata</i> | 田螺 | NP | VC | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | ++ | + | + | + | | | | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | -- | NP | VC | + | + | | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | | | | |
| <i>Caenis sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Chironomus sp.</i> | 蠅幼虫 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Euphaea sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Indobaetis sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | | | | |
| <i>Odonate larvae</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum spp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Pseudagrion spp.</i> | -- | NP | UC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Pseudocloeon sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Serratella sp.</i> | -- | NP | VC | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | | |
| Crustaceans | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cryptopotamon anacoluthon</i> | 刺刺溪蟹 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No of Species | | | | 13 | 10 | 9 | 8 | 14 | 12 | 12 | 9 | 14 | 12 | 13 | 9 | 11 | 11 | 13 | 8 | 10 | 12 | 13 | 8 | 10 | 12 | 15 | 6 | 12 | 12 | 14 | 8 | 12 | 12 | 13 | 7 | 12 | 11 | 13 | 7 | 10 | 8 | 13 | 6 | 10 | 11 | 14 | 6 | 7 | 10 | 12 | 6 | | | | |

Note: NP – Not protected in Hong Kong;
P - protected species in Hong Kong
“VC” – Very Common; “UC” – Uncommon; “C” - Common
“+” – Species exists in the study area
“++” – Species common in the study area
“+++” – Species abundance in the study area
- Reference point was the sampling location outside the works area used to compare the with the data within works area.

Table 4.5 Aquatic Macro invertebrates recorded at She Shan River.

(T1 - Upper stream section, T2 - middle stream section, T3 - Lower stream section)

| Species | Chinese name | Sampling location | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | | | | | |
|----------------------------------|--------------|-------------------|--------------|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|-----------|----|----|----|--------|----|----|----|---|----|----|----|
| | | Status | Common -ness | Apr-16 | | | | May-16 | | | | Jun-16 | | | | Jul-16 | | | | Aug-16 | | | | Sep-16 | | | | Oct-16 | | | | Nov-16 | | | | Dec-16 | | | | | | | |
| | | | | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | | | | | | | | |
| Mollusks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Anodonta woodiana</i> | 新角無齒蚌 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | |
| <i>Brotia hainanensis</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | |
| <i>Corbicula fluminea</i> | 河蚌 | NP | VC | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | |
| <i>Melanooides tuberculata</i> | 縮螺黑螺 | NP | VC | + | + | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + |
| <i>Pomacea canaliculata</i> | 縮螺 | NP | VC | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + |
| <i>Radix plicatulus</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | -- | NP | VC | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | |
| <i>Caenis sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Chironomus sp.</i> | 蠅幼虫 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Euphaea sp.</i> | -- | NP | VC | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | |
| <i>Indobaetis sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | |
| <i>Odonate larvae</i> | -- | NP | VC | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | |
| <i>Orthetrum spp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Pseudagrion spp.</i> | -- | NP | UC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudocloeon sp.</i> | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Serratella sp.</i> | -- | NP | VC | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | |
| Crustaceans | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | |
| <i>Cryptopotamon anacoluthon</i> | 刺刺溪蟹 | NP | VC | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | |
| No of Species | | | | 9 | 14 | 15 | 6 | 9 | 14 | 15 | 6 | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 | | | | |

Note: NP – Not protected in Hong Kong;

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“VC” – Very Common; “UC” – Uncommon; “C” - Common

“+” – Species exists in the study area

“++” – Species common in the study area

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- Reference point was the sampling location outside the works area used to compare the with the data within works area.

Table 4.5 Aquatic Macro invertebrates recorded at She Shan River.

(T1- Upper stream section, T2 - middle stream section, T3 - Lower stream section)

| Species | Chinese name | Sampling location | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | |
|----------------------------------|--------------|-------------------|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|
| | | | | Jan-17 | | | | Feb-17 | | | | Mar-17 | | | |
| | | | | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 |
| Mollusks | | | | | | | | | | | | | | | |
| <i>Anodonta woodiana</i> | 背角無齒蚌 | NP | VC | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | |
| <i>Brotia hainanensis</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | |
| <i>Corbicula fluminea</i> | 河蚌 | NP | VC | | | + | | | | + | | | | + | |
| <i>Melanoides tuberculata</i> | 縮螺黑螺 | NP | VC | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | |
| <i>Pomacea canaliculata</i> | 福壽螺 | NP | VC | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | |
| <i>Radix plicatulus</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | |
| Insects | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | -- | NP | VC | | | + | | | | + | | | | + | |
| <i>Caenis sp.</i> | -- | NP | VC | | | | | | | | | | | | |
| <i>Chironomus sp.</i> | 蠅幼虫 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Euphaea sp.</i> | -- | NP | VC | | | + | | | | + | | | | + | |
| <i>Indobaetis sp.</i> | -- | NP | VC | + | + | + | | + | + | + | | + | + | + | |
| <i>Odonate larvae</i> | -- | NP | VC | | + | + | | | + | + | | | + | + | |
| <i>Orthetrum spp.</i> | -- | NP | VC | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Pseudagrion spp.</i> | -- | NP | UC | | + | + | | | + | + | | | + | + | |
| <i>Pseudocloeon sp.</i> | -- | NP | VC | | | | | | | | | | | | |
| <i>Serratella sp.</i> | -- | NP | VC | | | + | | | + | | | | + | | |
| Crustaceans | | | | | | | | | | | | | | | |
| <i>Caridina cantanensis</i> | 廣東米蝦 | NP | VC | | + | + | | | + | + | | | + | + | |
| <i>Cryptopotamon anacoluthon</i> | 刺溪蟹 | NP | VC | | | + | | | | + | | | | + | |
| No of Species | | | | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 | 9 | 14 | 16 | 6 |

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- Reference point was the sampling location outside the works area used to compare the with the data within works area.

Table 4.6 Fish species and Hong Kong Newt recorded at She Shan River
(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Species | Status | Commonness | Baseline monitoring | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | | | | | | | | | | |
|---|---------------------|------------|---------------------|--------------|-------------------|--------------|-----------|--------|-------------------|--------|-----------|--------|-------------------|--------|-----------|----|-------------------|----|-----------|----|-------------------|----|-----------|----|-------------------|----|-----------|----|-------------------|----|-----------|----|-------------------|----|-----------|----|-------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Upper stream | Lower stream | Upper stream | Lower stream | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | | | | | | | | | | | | |
| | | | Jul-08 | Aug-08 | Jan-09 | Jul-09 | Jan-10 | Jul-10 | Jan-11 | Jul-11 | Jan-12 | Jul-12 | Jan-13 | Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Channa maculata</i> 斑鱔 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Clarias gariepinus</i> 革胡子鲶 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Gambusia affinis</i> 食蚊魚 | NP | VC | | | ++ | ++ | + | + | + | | | | | + | + | + | | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | |
| <i>Misgurnus anguillicaudatus</i> 泥鯮 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Oreochromis niloticus</i> 尼羅口非鯽 | NP | C | | | + | ++ | + | + | + | | | | | + | + | ++ | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Parazacco spilurus</i> 異鱔 | NP, V | C | + | ++ | + | ++ | + | + | ++ | + | + | | | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Poecilia reticulata</i> 孔雀花魚將 | NP | VC | | | ++ | ++ | | | + | + | | | | + | + | ++ | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pterocryptis cochinchinensis</i> 越南隱鯿鯰 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Puntius semifasciolatus</i> 七星魚 | NP | C | +++ | ++ | +++ | +++ | ++ | + | + | + | | | | + | + | + | + | + | + | + | + | + | + | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | |
| <i>Rhinogobius</i> spp. 鰻虎魚 | NP | C | | | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Xiphophorus hellerii</i> 劍尾魚 | NP | C | + | + | ++ | ++ | + | + | + | + | +++ | + | + | | | | | + | + | + | + | + | + | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Xiphophorus variatus</i> 雜色劍尾魚 | NP | C | | | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Zacco platypus</i> 斑鱔 | NP | C | ++ | + | + | + | + | + | + | + | | | | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 2x2m fish number | | | | 80 | 60 | 80 | 60 | 30 | 15 | 45 | 30 | 0 | 0 | 300 | 30 | 0 | 13 | 0 | 20 | 5 | 20 | 200 | 22 | 16 | 3 | 0 | 6 | 4 | 2 | 3 | 8 | 2 | 4 | 0 | 4 | 2 | 2 | 0 | 5 | 3 | 4 | 2 | 5 | 3 | 4 | 2 | |
| | | | No of Species | | | | 4 | 4 | 9 | 9 | 6 | 1 | 6 | 9 | 7 | 1 | 0 | 5 | 7 | 1 | 6 | 0 | 7 | 3 | 9 | 8 | 8 | 6 | 1 | 0 | 8 | 0 | 2 | 1 | 8 | 6 | 1 | 0 | 9 | 7 | 7 | 3 | 9 | 8 | 8 | 3 | 8 | 8 | 7 | 6 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> 香港澤螺 | P, Cap 170, NT, PGC | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: NP – Not protected in Hong Kong

"VC" – Very Common; "UC" – Uncommon; "C" - Common

"+" – Species exists in the study area

"++" – Species common in the study area

"+++" – Species abundance in the study area

- Reference point was the sampling location outside the works area used to compare the with the data within works area.

"Cap 170" - List in Wild Animals Protection Ordinance (Cap.170)

"NT" - Near Treated in IUCN Red List Status

"PGC"-Potential Goral Concern by Fellowes *et al* (2002)

"V" - Vulnerable - in Red China Data Book

Table 4.6 Fish species and Hong Kong Newt recorded at She Shan River
(T1- Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Species | Commonness | Status | Reference | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | |
|-------------------------------------|------------|---------------------|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|------------------------------|----|----|-----------|--------|----|----|-----------|--------|----|----|----|
| | | | | Jan-14 | | | | Feb-14 | | | | Mar-14 | | | | Apr-14 | | | | May-14 | | | | Jun-14 | | | | Jul-14 | | | | Aug-14 | | | | Sep-14 | | | | Oct-14 | | | | Nov-14 | | | |
| | | | | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | | | | |
| <i>Channa maculata</i> | 斑鱧 | NP | C | | | | | + | | | | | | | | + | + | + | | + | + | + | | | | | | + | + | + | | + | + | + | | | | | | + | + | + | | | | | |
| <i>Clarias gariepinus</i> | 革胡子鮠 | NP | VC | | | | | + | | | | | | | | + | | | | | | | | | | | | + | + | + | | + | + | + | | | | | | + | + | + | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰌 | NP | C | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | | |
| <i>Oreochromis niloticus</i> | 尼羅口非鯽 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Paracacco spilurus</i> | 異鱧 | NP, V | C | + | + | ++ | ++ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | | |
| <i>Pterocryptis cochinchinensis</i> | 越南隱鰭鮠 | NP | C | | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Rhinogobius spp.</i> | 鰻虎魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | ++ | ++ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | |
| <i>Zacco platypus</i> | 黃鰱 | NP | C | + | + | ++ | + | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | | | | |
| 2x2m fish number | | | | 12 | 16 | 30 | 40 | 30 | 40 | 50 | 60 | 60 | 70 | 70 | 40 | 40 | 50 | 40 | 20 | 10 | 20 | 10 | 10 | 12 | 5 | 8 | 6 | 16 | 8 | 10 | 10 | 12 | 10 | 16 | 12 | 20 | 20 | 30 | 16 | 40 | 30 | 40 | 30 | 50 | 50 | 60 | 50 |
| No of Species | | | | 8 | 8 | 7 | 7 | 12 | 8 | 7 | 7 | 12 | 11 | 11 | 8 | 12 | 11 | 12 | 9 | 10 | 10 | 13 | 9 | 10 | 10 | 9 | 11 | 9 | 8 | 11 | 10 | 9 | 9 | 12 | 10 | 9 | 9 | 12 | 10 | 8 | 9 | 11 | 10 | 8 | 9 | 12 | 8 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港澤龜 | P, Cap 170, NT, PGC | R | + | | | | + | | + | | + | + | + | | | | | | + | | | | | | | | + | | | | | | | | | | | | + | | | | | | | |

Note: NP – Not protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” – Common
 “+” – Species exists in the study area
 “++” – Species common in the study area
 “+++” – Species abundance in the study area
 - Reference point was the sampling location outside the works area used to compare the with the data within works area.
 Cap 170 - List in Wild Animals Protection Ordinance (Cap.170)
 NT - Near Treated in IUCN Red List Status
 PGC - Potential Golar Concern by Fellowes *et al* (2002)
 V - Vulnerable - in Red China Data Book

Table 4.6 Fish species and Hong Kong Newt recorded at She Shan River
(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Species | Commonness | Status | Commonness | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | | | | |
|-------------------------------------|------------|---------------------|------------|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|-----------|----|----|----|--------|----|----|----|
| | | | | Dec-14 | | | | Jan-15 | | | | Feb-15 | | | | Mar-15 | | | | Apr-15 | | | | May-15 | | | | Jun-15 | | | | Jul-15 | | | | Aug-15 | | | | Sep-15 | | | | Oct-15 | | | |
| | | | | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | | | | |
| <i>Channa maculata</i> | 斑鱧 | NP | C | | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | |
| <i>Clarias gariepinus</i> | 革胡子鮠 | NP | VC | | | + | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰌 | NP | C | | | + | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | |
| <i>Oreochromis niloticus</i> | 尼羅口非鯽 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Paracacco spilurus</i> | 異鱧 | NP, V | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | + | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | |
| <i>Pterocryptis cochinchinensis</i> | 越南隱鰭鮠 | NP | C | | | + | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Rhinogobius spp.</i> | 鰻虎魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | + | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | |
| <i>Zacco platypus</i> | 寬鰭鱈 | NP | C | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | | | | |
| 2x2m fish number | | | | 60 | 50 | 50 | 40 | 50 | 40 | 40 | 50 | 40 | 30 | 40 | 40 | 40 | 40 | 50 | 50 | 30 | 35 | 55 | 45 | 20 | 10 | 20 | 10 | 20 | 10 | 20 | 10 | 15 | 8 | 15 | 8 | 20 | 10 | 20 | 10 | 20 | 12 | 23 | 12 | 35 | 35 | 25 | 20 |
| No of Species | | | | 7 | 6 | 11 | 9 | 7 | 8 | 11 | 8 | 7 | 9 | 12 | 8 | 8 | 8 | 10 | 12 | 9 | 8 | 10 | 12 | 8 | 9 | 13 | 10 | 8 | 8 | 13 | 10 | 8 | 8 | 13 | 10 | 8 | 8 | 13 | 7 | 8 | 8 | 13 | 6 | 8 | 8 | 13 | 6 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港澤螈 | P, Cap 170, NT, PGC | R | | | + | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | + | | | | | | |

Note: NP – Not protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” – Common
 “+” – Species exists in the study area
 “++” – Species common in the study area
 “+++” – Species abundance in the study area
 - Reference point was the sampling location outside the works area used to compare the with the data within works area.
 Cap 170 - List in Wild Animals Protection Ordinance (Cap.170)
 NT - Near Threatened in IUCN Red List Status
 PGC - Potential Global Concern by Fellowes *et al.* (2002)
 V - Vulnerable - in Red China Data Book

Table 4.6 Fish species and Hong Kong Newt recorded at She Shan River
(T1- Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Species | | Status | Commonness | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | |
|-------------------------------------|--------|---------------------|------------|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|-----------|----|----|----|
| | | | | Nov-15 | | | | Dec-15 | | | | Jan-16 | | | | Feb-16 | | | | Mar-16 | | | | Apr-16 | | | | May-16 | | | | Jun-16 | | | | Jul-16 | | | | Aug-16 | | | |
| | | | | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 |
| <i>Channa maculata</i> | 斑鱧 | NP | C | | | + | | | | + | | | | | + | | | | | + | | | | | | + | | | | | + | | | | | | + | | | | | | |
| <i>Clarias gariepinus</i> | 革胡子鮠 | NP | VC | | | + | + | | | + | + | | | | + | + | | | | + | + | | | | | + | + | | | | | + | + | | | | | | + | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰌 | NP | C | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | | + | ++ | ++ | |
| <i>Paracacco spilurus</i> | 異鱧 | NP, V | C | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | + | + | | | + | + | | | + | + | | | | | + | + | | | | | + | + | | | | + | + | | | | | + | + | | | | | |
| <i>Pterocryptis cochinchinensis</i> | 越南隱鰭鮠 | NP | C | | | + | | | | + | | | | | + | | | | | | + | | | | | | + | | | | | + | | | | | | | | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | |
| <i>Rhinogobius spp.</i> | 鰻虎魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | + | + | | | + | + | | | + | + | | | | | + | + | | | | + | + | | | + | + | | | + | + | | | + | + | | | + | + | |
| <i>Zacco platypus</i> | 黃鰱 | NP | C | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + |
| 2x2m fish number | | | | 45 | 45 | 35 | 30 | 55 | 50 | 40 | 35 | 55 | 45 | 35 | 25 | 60 | 45 | 40 | 30 | 60 | 50 | 35 | 25 | 40 | 40 | 30 | 20 | 30 | 20 | 20 | 10 | 30 | 20 | 25 | 8 | 20 | 15 | 20 | 3 | 20 | 10 | 15 | 5 |
| No of Species | | | | 8 | 8 | 13 | 6 | 8 | 8 | 13 | 6 | 8 | 8 | 12 | 7 | 8 | 8 | 12 | 7 | 8 | 8 | 12 | 7 | 8 | 8 | 12 | 7 | 8 | 8 | 12 | 7 | 8 | 8 | 12 | 7 | 8 | 8 | 12 | 7 | 8 | 8 | 12 | 5 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港澤螺 | P, Cap 170, NT, PGC | R | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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“+” – Species exists in the study area
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- Reference point was the sampling location outside the works area used to compare the with the data within works area.
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Table 4.6 Fish species and Hong Kong Newt recorded at She Shan River
(T1 - Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Species | Status | Commonness | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | Post construction monitoring | | | | | | | | |
|-------------------------------------|--------|---------------------|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|------------------------------|----|----|----|-----------|----|----|----|----|
| | | | Sep-16 | | | | Oct-16 | | | | Nov-16 | | | | Dec-16 | | | | Jan-17 | | | | Feb-17 | | | | Mar-17 | | | | |
| | | | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | Reference | T1 | T2 | T3 | |
| <i>Channa maculata</i> | 斑鱧 | NP | C | | | + | | | | + | | | | | + | | | | | + | | | | | | | + | | | | |
| <i>Clarias gariepinus</i> | 革胡子鮠 | NP | VC | | | + | | | | + | | | | | + | | | | | + | | | | | | | + | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰌 | NP | C | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | | | |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | | | |
| <i>Parazacco spilurus</i> | 異鱧 | NP, V | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Poecilia reticulata</i> | 孔雀花魚將 | NP | VC | | | + | | | | + | | | | | + | | | | | + | | | | | | | + | | | | |
| <i>Pterocryptis cochinchinensis</i> | 越南隱鰭鮠 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | | | |
| <i>Rhinogobius spp.</i> | 鰻虎魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | + | + | | + | | | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | + | | | | + | | | | | + | | | | | + | | | | | | + | | | | | |
| <i>Zacco platypus</i> | 黃鰱 | NP | C | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | ++ | ++ | + | + | | | |
| 2x2m fish number | | | | 20 | 12 | 15 | 8 | 25 | 20 | 20 | 10 | 35 | 35 | 30 | 20 | 45 | 40 | 40 | 20 | 45 | 45 | 45 | 20 | 50 | 50 | 50 | 30 | 55 | 55 | 50 | 20 |
| No of Species | | | | 8 | 8 | 12 | 5 | 8 | 8 | 12 | 5 | 8 | 8 | 12 | 5 | 8 | 8 | 12 | 5 | 8 | 8 | 12 | 5 | 8 | 8 | 12 | 5 | 8 | 8 | 12 | 5 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港澤螈 | P, Cap 170, NT, PGC | R | | | + | | | | + | | | | | | | | | | | | | | | | | | + | | | |

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Table 4.7 Abiotic data for the Upper She Shan River

(T1- Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Parameter / date | Baseline monitoring | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Post construction monitoring | | | Post construction monitoring | | | | | | |
|----------------------------|---------------------|-------------------|---------------------|--------------------|-------------------|------|-----------|-------------------|-----------|-----|-------------------|------|------|-------------------|------|------|-------------------|------|------|-------------------|------|-----|-------------------|------|------|-------------------|------|------|------------------------------|-------|------|------------------------------|------|------|--------|-----|-----|-----|
| | Aug-08 | Jan-09 | | | Jul-09 | | | Jan-10 | | | Jul-10 | | | Jan-11 | | | Jul-11 | | | Jan-12 | | | Jul-12 | | | Jul-13 | | | Dec-13 | | | Jan-14 | | | Feb-14 | | | |
| Replicate | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | | | | |
| DO (mg/L) | 8.9 | -- | 9.1 | 8.3 | 6 | 5.8 | 6.5 | -- | 8.9 | -- | 8.2 | 8.3 | 8.3 | 8 | 8.5 | 8.8 | 8 | 8.5 | 9 | 8.6 | 8.2 | 8.8 | 7.7 | 7.7 | 6.3 | 7.8 | 7.8 | 7.7 | 8.7 | 8.6 | 9.2 | 8.3 | 8.2 | 8.6 | 7.2 | 7.6 | 7.8 | |
| pH | 7.29 | -- | 7.51 | 7.42 | 7.22 | 7.16 | 7.35 | -- | 7.5 | -- | 7.5 | 7.5 | 7.5 | 6.9 | 7 | 7.2 | 7 | 7.2 | 7.5 | 6.9 | 6.6 | 7.1 | 6.7 | 6.6 | 6.6 | 6.8 | 7.2 | 7.6 | 6.6 | 6.9 | 7.1 | 6.8 | 7.3 | 7.4 | 7.8 | 6.7 | 7.6 | |
| Nitrate (mg N/L) | 0.5 | -- | 1.6 | 1.5 | 0.22 | 0.3 | 0.4 | -- | 0.75 | -- | 0.1 | 0.14 | 0.2 | 0.1 | 0.2 | 0.7 | 0.1 | 0.3 | 0.4 | 0.2 | 0.2 | 0.4 | 0.84 | 0.86 | 1.14 | 0.6 | 0.61 | 0.7 | 0.78 | 0.63 | 0.53 | 1.2 | 1.12 | 1.02 | 1.5 | 1.2 | 1.6 | |
| Ammonia (mg N/L) | 0.1 | -- | PO4-P (µg P/L):<100 | PO4-P (µg P/L):110 | 0.83 | 0.97 | 0.99 | -- | 0.03 | -- | 0.25 | 0.2 | 0.12 | 0.1 | 0.1 | 0.12 | 0.1 | 0.1 | 0.15 | 0.2 | 0.2 | 0.3 | 0.05 | 0.02 | 1.08 | 0.14 | 0.06 | 0.05 | 0.08 | <0.01 | 0.42 | 1.9 | 1.8 | 1.73 | 0.8 | 1.2 | 1.4 | |
| Salinity (ppt) | <0.1 | -- | 0.1 | 0.1 | 0 | 0 | 0 | -- | 0 | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0 | 0 | 0 | 0.03 | 0.04 | 0.07 | 0.03 | 0.03 | 0.04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Conductivity (µS/cm) | 90 | -- | 140 | 170 | 116 | 114 | 116 | -- | 105 | -- | 410 | 410 | 390 | 110 | 116 | 111 | 115 | 120 | 115 | 130 | 122 | 118 | 126 | 121 | 120 | 160 | 94 | 97 | 97 | 116 | 116 | 134 | 124 | 118 | 132 | 128 | 113 | 132 |
| BOD (mg/L) | <2 | -- | <2 | 4 | <2 | <2 | <2 | -- | 2 | -- | <2 | 3.2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Water flow at pool (m/s) | 0.1-0.3 | -- | <0.01-0.1 | | <0.01 | N.A | <0.01-0.1 | -- | <0.01-0.1 | -- | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0.2 | 0.05 | 0.1 | 0.2 | 0.05 | 0.1 | 0.2 | 0.05 | 0.1 | 0.2 | 0.05 | 0.1 | 0.1 | 0.05 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | |
| Water flow at riffle (m/s) | 0.4-0.5 | -- | 0.2-0.3 | | <0.01 | N.A | 0.2-0.3 | -- | 0.01 | -- | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Sand (%) | 55 | 65 | 23 | 65 | 23 | 23 | 65 | 5 | 23 | -- | 5 | 30 | 5 | 5 | 30 | 2 | 5 | 30 | 2 | 10 | 25 | 5 | 10 | 25 | 5 | 15 | 25 | 5 | 15 | 10 | 5 | 15 | 10 | 5 | 15 | 10 | 5 | |
| Stone (%) | 25 | 30 | 75 | 30 | 75 | 75 | 30 | 40 | 75 | -- | 40 | 65 | 80 | 40 | 65 | 2 | 40 | 65 | 2 | 45 | 65 | 5 | 45 | 65 | 5 | 65 | 65 | 15 | 65 | 80 | 20 | 65 | 80 | 20 | 65 | 80 | 20 | |
| Mud (%) | 30 | 5 | 2 | 5 | 2 | 2 | 5 | 5 | 2 | -- | 5 | 5 | 5 | 5 | 5 | 1 | 5 | 5 | 1 | 5 | 10 | 10 | 5 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 5 | 10 | 10 | 5 | 10 | 10 | 5 | |
| Concrete (%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 100 | 50 | 0 | 10 | 50 | 0 | 95 | 50 | 0 | 95 | 40 | 0 | 80 | 40 | 0 | 80 | 10 | 0 | 70 | 10 | 0 | 70 | 10 | 0 | 70 | 10 | 0 | 70 | |

Table 4.7 Abiotic data for the Upper She Shan River

(T1- Upper stream section, T2 - middle stream section and T3 - Lower stream section)

| Parameter / date | Monitoring | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | |
|----------------------------|------------|------------------------------|---------|---------|------------------------------|---------|---------|------------------------------|---------|---------|
| | | Jan-17 | | | Feb-17 | | | Mar-17 | | |
| Replicate | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 |
| DO (mg/L) | 7.9 | 8.0 | 8.0 | 7.9 | 8.1 | 7.9 | 7.9 | 8.0 | 7.9 | 8.0 |
| pH | 7.6 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.7 |
| Nitrate (mg N/L) | 0.5 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 |
| Ammonia (mg N/L) | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Salinity (ppt) | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| Conductivity (µS/cm) | 26 | 29 | 29 | 32 | 33 | 29 | 33 | 36 | 37 | 52 |
| BOD (mg/L) | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Water flow at pool (m/s) | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 | 0.1-0.2 |
| Water flow at riffle (m/s) | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 | 0.2-0.5 |
| Sand (%) | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Stone (%) | 30 | 80 | 80 | 30 | 80 | 80 | 30 | 80 | 80 | 30 |
| Mud (%) | 2 | 5 | 5 | 2 | 5 | 5 | 2 | 5 | 5 | 2 |
| Concrete (%) | 63 | 10 | 10 | 63 | 10 | 10 | 63 | 10 | 10 | 63 |

**Agreement No. CE65/2013(EP) Post-Construction
Ecological Monitoring of River Improvement Work in
Upper Lam Tsuen River, She Shan River and Upper Tai Po
River – Investigation
Post-Construction Ecological Monitoring Report (No. 39)
Upper Tai Po River**

March 2017



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April 21, 2017

Ecology Team: China Hong Kong Ecology Consultants

**Post-Construction Ecological Monitoring of River
Improvement Work in Upper Lam Tsuen River, She Shan
River and Upper Tai Po River – Investigation
Agreement No. CE65/2013(EP)**

**Post-Construction Ecological Monitoring Report (No.389)
Upper Tai Po River**

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1 Introduction

- 1.1 The current post-construction ecological monitoring programme is under Agreement No. CE65/2013(EP) Post-Construction Ecological Monitoring of River Improvement Work in Upper Lam Tsuen River, She Shan River and Upper Tai Po River. The collected data are mainly used to assess ecological recovery process and effectiveness of ecological migration proposed and enforced during the construction period.
- 1.2 The scope of the ecological monitoring was detailed in EM & A Manual of the project. In brief, the survey aimed to collect data on abiotic factors such as water quality, substratum characteristics, water flow as well as flora and fauna.
- 1.3 China Hong Kong Ecology Consultants Ltd. was committed by Allied Environmental Consultants Ltd (AEC) to undertake the ecological monitoring tasks for the project from December 2014.
- 1.4 This is the number 39 post-construction ecological monitoring report for the project conducted **on 16th March 2017**. It contains the following subsections:
 - Summary of major points
 - Monitoring Methods and Results
 - Summary and Comments

2 Summary of Major Points

- Fauna and flora along the drainage project sections is in a process of re-establishing or restoration;
- Bird abundance was similar to those recorded during baseline survey;
- The abundance of target river fauna, i.e., fish *Parazacco spilurus* recorded was lower than those recorded during baseline monitoring (before fish capture/relocation took place). The reason for low fish population of *Parazacco spilurus* was due to river bed modification. The rare fish *Pseudobagrus trilineatus* was consistently recorded in the river during recent monitoring. The other target species, Hong Kong Newt *Paramesotriton hongkongensis*, was not found within works area during baseline, impact monitoring and it was recorded in the river during post construction monitoring. Apart from fauna species, 55 flora species was recorded within the survey transects along the river course. Some common herbs were observed generating on the embankment, which indicating that vegetation was recovering. Flora species of *Tibouchina semidecandra* and *Ipomoea pes-caprae* were planted on the gabion along the river for landscape purpose;
- The abundance of fish was similar to last month with slight increase;
- The abundance of odonata was the same as last month's result; and
- Hong Kong Newt was not recorded during the survey.

3 Monitoring Methodology

3.1 Riparian Vegetation

Riparian vegetation including aquatic and emergent was sampled by line transects along the affected river channel and riparian habitat. Species, relative abundance and average heights were recorded. Vegetation surveys were conducted at three selected belt transects with one located at the upper portion of the river channel (T1) and another one at the middle section of the river (T2), as well as reference site (**Figure 1**). The belt transects was run across the river channel in order to collect quantitative data of the vegetation, e.g., species inventory, height, percentage cover. Qualitative data of plants was collected by recording plant species along line transect, e.g., species inventory, relative abundance. Nomenclature and protection status of the species has followed those documented in Lai *et al.* (2004) and Hong Kong Herbarium (2015).

3.2 Avifauna

Avifauna survey was conducted during post construction monitoring period. Special attention was given to the river channel and corridor area which birds used as feeding and foraging habitat. Avifauna survey was undertaken in the early morning plus species recorded in the rest of the day when conducting other taxonomic groups (benthic, fish, insect) monitoring. Numerical abundance was recorded at fixed count points within a radius of 30 to 50m according to landscape feature and visual penetration extent. The duration of the point count of birds was standardized for 10 minutes at each location in order to collect comparable data. Transect count along accessible sections of river channel were used in order to collect qualitative data. Binoculars and digital camera were the main items of equipment used. Nomenclature and protection status of the species has followed in the AFCDD website (www.hkbiodiversity.net) and Carey *et al.* (2001).

The point count was conducted at two locations with one located at the lower portion of the river channel (T2) and the other located at the upper section of the river (T1). The point count locations, survey transect for bird survey and sampling sites for surveys of other faunal groups and flora was given in **Figure 1**.

3.3 Adult Odonata Survey

Adult Odonata surveys were conducted along transects (**Figure 1**). Binoculars, digital camera and hand net were utilized to aid identification. Numerical abundance, species identity and other notable behavior were recorded. Nomenclature and protection status of the species has followed those documented in the AFCDD website (www.hkbiodiversity.net), Wilson *et al.* (2004) and Tam *et al.* (2011). Adult Odonata survey was conducted along line transects in parallel with river channel within the works area where access was permitted.

3.4 Aquatic Macro-invertebrates

Macro-invertebrates in the river channel were surveyed in three sampling sites with two located at upper (T1) and middle (T2) proportion of the river respectively and one reference site. It aims to collect necessary macro-invertebrate fauna for ecological monitoring programme (**Figure 1**). Five replicates were taken at each sampling point and pool together for further sample sorting and identification. Kick sampling and hand netting were the survey methodologies for river organisms. Dissection microscope and digital camera were used to aid identification and enumeration. Numerical abundance and species identity were recorded. Nomenclature and protection status of the species has followed those documented in the AFCD website (www.hkbiodiversity.net) and other literatures such as Dudgeon (1994).

3.5 Fish and Newt

Fish community including target species *Parazacco spilurus* and *Paramesotriton hongkongensis* at the specified river channel was monitored by live trapping, hand netting and direct observation methods.

Sampling was conducted at three sampling locations with one located at upper section (T1) and one located at middle section (T2), as well as reference site. The selected sampling site covered major type of river habitats, e.g. river pool and riffle (**Figure 1**). The number of the observed fish and newt was estimated and recorded. Nomenclature and protection status of the species has followed those documented in the AFCD website (www.hkbiodiversity.net) and Lee *et al.* (2004).

3.6 Abiotic Data Collection

3.6.1 Water Quality Monitoring

Dissolved oxygen level, pH value, conductivity, salinity, BOD and nutrient level (nitrate and ammonium) were measured and analyzed by conventional methods in situ or in laboratory. The instruments for measuring dissolved oxygen level, pH value, conductivity, salinity were model: DO-5510, AZ8685, AZ8361 and AZ8374 respectively. All the instruments were calculated every monitoring month according to the operation manuals in order to obtain the precise result. BOD test took 5 days to complete within darkness incubator with stable temperature at 20°C and was performed using model: DO-5510 for measuring dissolved oxygen. Nutrient levels including nitrate and ammonia were performed in laboratory by applying the In-house method SOP056 (FIA) and SOP057 (FIA) respectively.

3.6.2 Sediment Characteristics

Sediment/substrate characteristics were recorded of sediment cover in percentage e.g. mud, sand, rock, boulder and cemented bottom in the river bed at sampling sites.

3.6.3 Water Flow

Water flow rates in river channel were measured by recording the time taken for a floating object (e.g. floating ball) in a measured distance. The sampling sites for surveys were given in **Figure 1**.

4 Monitoring Results

4.1 Vegetation

Major proportion of river bed and bank was concrete and without plant colonizing (Photos 1-4). Vegetation has sparsely covered the gabion wall along the upper Tai Po River and the river bed with some common plants (Photo 4) including invasive species *Mikania micrantha*, and native species *Commelina diffusa*. Most of the plants on the river bed along the river have been removed from the clearance work. In total, 55 flora species were recorded within the survey transects along the river course. Abundant native species *Commelina diffusa* was the dominant species established in the river bed. Vegetation coverage in upper section was still low. The flora were generally in good health, and the height of the dominated riparian grass and herb species were in a range from 0.3m to 1.6m as observed along survey transect. Dominant flora species were shown in the **Table 4.1** marked with relative abundance sign “+++”. Results of vegetation survey and belt transect survey were presented in **Table 4.1** and **Table 4.2**. **Figure 1** shows the transect line for the flora surveys.

4.2 Fauna

4.2.1 Avifauna

An avifauna survey was undertaken along survey transects and at two defined point count locations. In total, 19 species of birds were recorded during bird survey. Among them, 5 species were wetland dependant birds observed feeding and roosting in the river channel including *Ardeola bacchus*, *Motacilla cinerea*, *Motacilla alba* (Photo 5), *Actitis hypoleucos* (Photo 6) and *Egretta garzetta*. A common species *Pycnonotus jocosus* was the dominant species of most of the proportion of the river. All the birds in Hong Kong are under protection of Wild Animals Protection Ordinance (Cap. 170). Some of the wetland dependent species recorded are classified as Regional Concern by Fellowes *et al.* (2002) including *Egretta garzetta* and *Ardeola bacchus*, which were usually observed feeding in the river. *Centropus sinensis* was found in the river (Photo 7), which is considered as Vulnerable in China Red Data Book. Only foraging and roosting behaviour of some wetland dependent birds were noticed. Transect and Point Count locations were shown on **Figure 1**. Result of bird survey was presented in the **Table 4.3**.

4.2.2 Adult Odonata Survey

Odonata surveys were performed and a list of recorded odonata species at Upper Tai Po River is shown in **Table 4.4**. Number of odonata species recorded was similar to last month and the previous surveys conducted in approximate period of last year. In total, 3 species odonata was found, the recorded odonata species was common species in Hong Kong (Photo 8). Most of the odonata species in Hong Kong has the peak emergence from spring to late summer. The decrease in abundance of odonata was due to seasonality. It is expected that number of odonata will increase in the following months during wet season (Wilson *et al.*, 2004 & Tam *et al.*, 2011). Sampling location was shown in **Figure 1**.

4.2.3 Aquatic Macro-invertebrates

Aquatic-net and kick sampling were performed at the river. The river benthic fauna collected was mainly comprised of insects, molluscs and crustaceans (Photos 8-9). Details of recorded of river benthic fauna refers to **Table 4.5**. Sampling location was shown on **Figure 1**.

4.2.4 Hong Kong Newt

Survey of Hong Kong Newt was conducted at Upper Tai Po River. Adult Hong Kong Newt was not captured in this month at reference site. Hong Kong Newt is listed in Wild Animals Protection Ordinance (Cap. 170) and classified as “Near Threatened” under IUCN Red List Status and as “Potential Global Concern” by Fellowes *et al.* (2002). Record of Hong Kong Newts can be referred to **Table 4.6**.

4.2.5 River Fish Fauna

Fish surveys were performed at Upper Tai Po River during surveys. In total, 12 species freshwater fish were recorded within project area. Fish abundance was low along the modified river channel. The *Parazacco spilurus*, *Glyptothorax pallozonum* and *Pseudobagrus trilineatus*, which have conservation interest, were restricted in the upper section of the surveyed river outside the works boundary where the habitat was not affected by construction works, while *Parazacco spilurus* is listed in China Red Data Book Status as Vulnerable and *Pseudobagrus trilineatus* is classified as Global Concern by Fellowes *et al.* (2002). The data showed that fish abundance was similar to the record of last month with slight increase in reference site. Details of records of fish fauna refers to **Table 4.6**. Sampling location was shown on **Figure 1**.

4.3 **Abiotic Data**

Data on water quality and major river hydrological feature (water flow and substratum) of the river were collected and are presented in the **Table 4.7**.

Generally, the water was not polluted and nutrient levels were generally low. Results of water test were presented in the **Table 4.7**.

The river substratums of upper and lower sections were comprised of 40% stone and 60% concrete, 20% stone and 80% concrete respectively. Moderate water flow up to 0.3m/second at pool and 0.6m/second at riffle was measured.

5 **Summary and Commentary**

Post construction ecological monitoring was carried out in current month and relevant biotic and abiotic data were collected according to project specification and EM & A Manual. No adult Newt was recorded during the survey. Fish's abundance appears to be similar to last month. Bird abundance was similar to those recorded during baseline survey. Species richness of odonata was similar to last month's result.

Aquatic and riparian vegetation along river channel was re-established compared to those recorded during baseline surveys. However, vegetation clearance work has removed most of the plant out of the river bed. Vegetation

has sparsely covered gabion wall and river bed along to the Upper Tai Po River.

The water quality of the surveyed river was not polluted as indicated by low nutrient concentration level of ammonium and nitrate although the river channel may receive discharge and runoff from the village areas.

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FIGURE

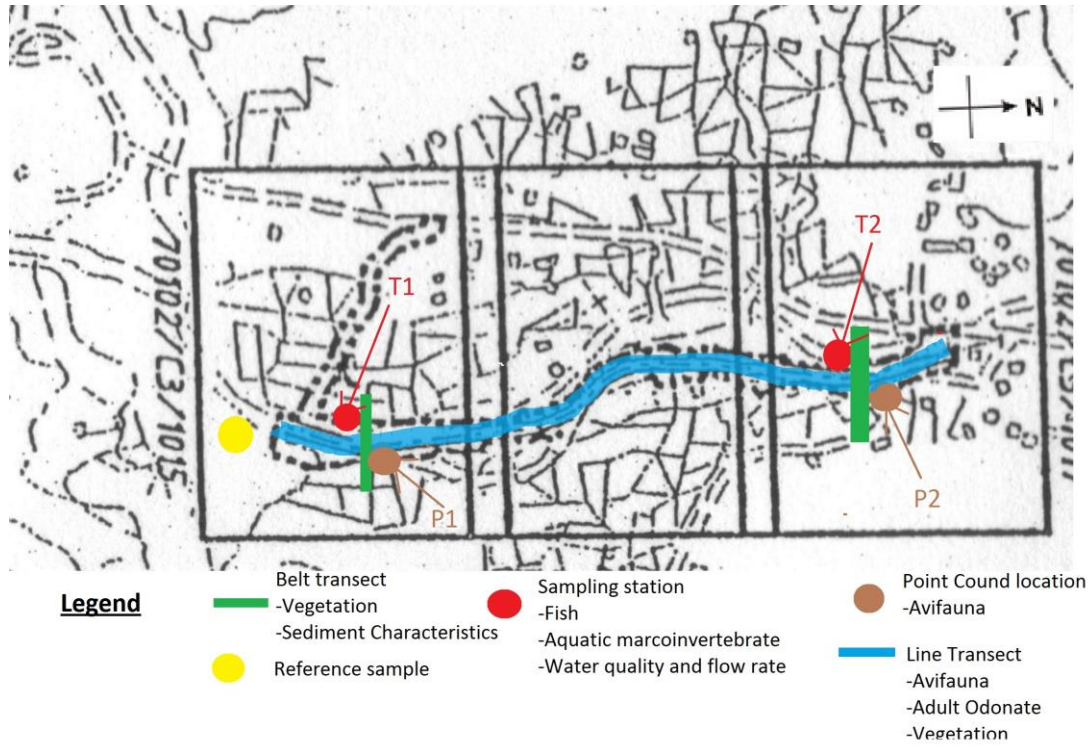


Figure 1. Sampling Location of Ecological Survey and Monitoring at Upper Tai Po River, Tai Po.

PHOTOS



Photo 1: General view of the river channel
(Reference site)



Photo 2: General view of the river channel
(Upper section)



Photo 3: General view of the river channel
(Middle section)



Photo 4: Vegetation sparsely growing on gabion
(Middle section)



Photo 5: Avifauna – *Motacilla alba*



Photo 6: Avifauna – *Actitis hypoleucos*

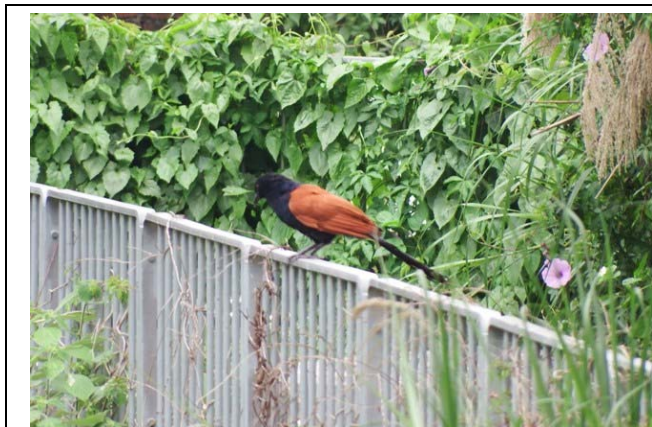


Photo 7: Avifauna – *Centropus sinensis*



Photo 8: Aquatic sample



Photo 9: Aquatic sample

TABLE

Table 4.2. Flora species recorded from belt transect survey at the Upper Tai Po stream (T1 - Upper stream sampling site and T2 - Lower stream sampling site)

| Family | Species | Chinese name | Baseline survey | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | Impact monitoring | | | | | | | | | |
|------------------|---------------------------------|--------------|-----------------|----|-----|----|-------------------|----|-----|-----|-------------------|-----|-----------|-----|-------------------|-----|-----|-----|-------------------|----|-----|-----|-------------------|----|-----------|-----|-------------------|-----|-----|----|-------------------|-----|-----|---|--------|-----|-----------|-----|----|--|
| | | | Oct-07 | | | | Jan-09 | | | | Jul-09 | | | | Jan-10 | | | | Jul-10 | | | | Jan-11 | | | | Jul-11 | | | | Jan-12 | | | | Jul-12 | | | | | |
| | | | P1 | | P2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | |
| Asteraceae | <i>Mikania micrantha</i> | 蕨甘菊 | 0.4 | 15 | 1 | 40 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | 0.5 | 5 | | |
| Myrtaceae | <i>Pilea bipida</i> | 耳葉楮 | 1 | 2 | | | 5 | 5 | | | | | 2 | 10 | 5 | 5 | 0.5 | 3 | 0.2 | 5 | 0.2 | 2 | 0.5 | 20 | 0.5 | 60 | | | 0.5 | 10 | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | 5 | 2 | | | | | | | | | 6 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 細葉竹 | 1.2 | 45 | 1.2 | 30 | | | 0.8 | 10 | 0.5 | 12 | | | 0.7 | 30 | | | | | | 1 | 35 | 1 | 5 | 0.5 | 10 | 1 | 15 | 1 | 5 | 0.5 | 2 | 1 | 2 | | | | | |
| Euphorbiaceae | <i>Alchornea tanarius</i> | 血桐 | 2 | 2 | | | 5 | 5 | 3 | 5 | 1.5 | 4 | 5 | 5 | 3 | 5 | 1.5 | 5 | 5 | 5 | 5 | | | | | | 4m | 5 | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | 1.5 | 23 | | | | | | | 1.5 | 25 | | | 2 | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | 0.3 | <1 | 0.4 | <1 | 0.3 | 2 | | | 0.3 | 2 | 0.8 | 5 | | | 0.3 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Myrtaceae | <i>Cleistanthus operculatus</i> | 水翁 | | | 0.4 | 10 | | 7 | 5 | | | | | 0.4 | 10 | 7 | 5 | | | | | 0.4 | 10 | | | | | 0.4 | 5 | 5m | 5 | | | | | | | | | |
| Athyriaceae | <i>Callipteris esculenta</i> | 菜蕨 | | | 0.6 | 1 | 0.8 | 10 | | 0.4 | 10 | 0.8 | 10 | | 0.8 | 6 | | | | | | 0.8 | 6 | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Phragmites karka</i> | 水間蘆 | | | 1.5 | 51 | | | | 1.5 | 51 | | | 1.5 | 53 | | | | | | | 1.5 | 10 | | | | | 1.5 | 2 | | | 1.5 | 2 | | | | | | | |
| Thehypteridaceae | <i>Cyclosorus parasiticus</i> | 墨爾毛蕨 | 0.4 | 10 | | | 0.3 | 2 | | | 0.4 | 10 | | | | | 0.3 | 2 | | | | | | | | | | | | | | | | | | | | | | |
| Equisetaceae | <i>Equisetum debile</i> | 單管草 | | | 0.6 | <1 | 0.3 | 2 | | | 0.3 | 2 | | | | | 0.3 | 2 | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Ageratum conyzoides</i> | 滿地金 | | | | | 0.4 | 2 | | | 0.4 | 2 | | | | | 0.2 | 2 | | | | | | | | | 0.3 | 2 | 1.2 | 10 | | | | | 0.4 | 20 | | | | |
| Compositae | <i>Composita diffusa</i> | 滿地金 | | | | | | | | | | | | 0.2 | 5 | 0.2 | 5 | 0.2 | 5 | | | 0.5 | 20 | | | | 0.2 | 4 | | | | | | | 0.4 | 10 | | | | |
| Solanaceae | <i>Solanum nigrum</i> | 茄 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Mallotus paniculatus</i> | 白楸 | | | | | | | | | | | | | | | 0.3 | 5 | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Elysius indica</i> | 牛筋草 | | | | | | | | 0.5 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蝴蝶菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Panicum repens</i> | 結骨草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Coxis lacrima-jobi</i> | 粟殼 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea carnea</i> | 五爪金龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cucurbitaceae | <i>Benincasa hispida</i> | 冬瓜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Merremia hederacea</i> | 魚腥草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 柔洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Malvaceae | <i>Hibiscus rosa-sinensis</i> | 大紅花 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Balsaminaceae | <i>Impatiens walleriana</i> | 非洲鳳仙 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Cleovia argentea</i> | 青葙 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bare Ground | | | | | | | 10 | 73 | | 10 | 10 | 78 | 6 | | 10 | 73 | 88 | 9 | | 15 | 65 | | 68 | 80 | 89 | | 71 | 100 | 89 | | 35 | 100 | 100 | | 20 | 100 | | 100 | | |

- Reference point was the sampling location outside the works area used to compare with the data within works area.

P1 - Point count location 1; P2 - Point count location 2

Table 4.2. Flora species recorded from belt transect survey at the Upper Tai Po stream (T1 - Upper stream sampling site and T2 - Lower stream sampling site)

| Family | Species | Stream Transect Chinese name | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | |
|------------------|---------------------------------|------------------------------------|------------------------------|------------|-----|------------|-----|------------|------------------------------|------------|-----|------------|-----|------------|------------------------------|------------|-----|----|----|--|
| | | | May-16 | | | | | | Jun-16 | | | | | | Jul-16 | | | | | |
| | | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | |
| Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | | | |
| Asteraceae | <i>Mikania micrantha</i> | 蕨甘菊 | 0.6 | 5 | | | | | 0.6 | 5 | | | | | 0.6 | 5 | | | | |
| Moraceae | <i>Ficus hispida</i> | 烏葉榕 | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegum ciliatum</i> | 細葉竹 | 1.2 | 5 | | | | 1.2 | 5 | | | | | 1.2 | 5 | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | 1.5 | 5 | | | | | 1.5 | 5 | | | | 1.5 | 10 | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | 0.5 | 5 | | | | 0.5 | 5 | | | | | 0.5 | 5 | | | | | |
| Myrtaceae | <i>Cleistocalyx operculatus</i> | 水翁 | | | | | | | | | | | | | | | | | | |
| Alysiaceae | <i>Callipteris esculenta</i> | 菜蕨 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Phragmites karka</i> | 卡爾蕨 | 1.5 | 5 | | | | 1.5 | 5 | | | | | 1.5 | 5 | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 基爾毛蕨 | | | | | | | | | | | | | | | | | | |
| Equisetaceae | <i>Equisetum debile</i> | 龍鬚草 | 0.3 | 5 | | | | 0.3 | 5 | | | | | 0.3 | 5 | | | | | |
| Asteraceae | <i>Ageratum conyzoides</i> | 龍耳蕨 | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 錦雞草 | 0.4 | 5 | 0.3 | 5 | 0.4 | 2 | 0.4 | 5 | 0.3 | 5 | 0.4 | 2 | 0.4 | 5 | 0.3 | 5 | | |
| Solanaceae | <i>Solanum nigrum</i> | 茄 | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Mallotus paniculatus</i> | 白楸 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Eleusine indica</i> | 牛筋草 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蝴蝶菊 | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.7 | 5 | | 0.5 | 5 | 0.7 | 5 | | 0.5 | 5 | 0.7 | 5 | | 0.5 | 5 | 8 | | |
| Poaceae | <i>Panicum repens</i> | 結實草 | 0.4 | 5 | | | | 0.4 | 5 | | | | | 0.4 | 5 | | | | | |
| Poaceae | <i>Coxis lacrima-jobi</i> | 薑 | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea cairica</i> | 五爪金龍 | | | | | | | | | | | | | | | | | | |
| Cucurbitaceae | <i>Benincasa hispida</i> | 冬瓜 | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Merramia hederacea</i> | 魚骨草 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | 2 | 3 | | | | 2 | 3 | | | | 2 | 3 | 5 | | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | | 1.2 | 2 | | | | 1.2 | 2 | | | | 1.2 | 2 | | | | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | |
| Malvaceae | <i>Hibiscus rosa-sinensis</i> | 木棉花 | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | | | | | | | | | | | | | | | |
| Balsaminaceae | <i>Impatiens walleriana</i> | 非洲鳳仙 | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Cleovisa argentea</i> | 青葙 | 1.7 | 5 | | | | 1.7 | 5 | | | | | 1.7 | 5 | | | | | |
| Bare Ground | | | | 55 | | 93 | | 85 | | 55 | | 93 | | 85 | | 55 | | 93 | 72 | |

- Reference point was the sampling location outside the works area used to compare with the data within works area.

P1 - Point count location 1, P2 - Point count location 2

Table 4.2. Flora species recorded from belt transect survey at the Upper Tai Po stream (T1- Upper stream sampling site and T2 - Lower stream sampling site)

| | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | | | |
|------------------|---------------------------------|------------------------------|------------|-----------|------------|----|------------|------------------------------|------------|-----------|------------|----|------------|------------------------------|------------|-----------|------------|----|------------|------------------------------|------------|-----------|------------|----|------------|------------------------------|------------|-----------|------------|----|------------|----|--|
| | | Stream | | Aug-16 | | | | | | Sep-16 | | | | | | Oct-16 | | | | | | Nov-16 | | | | | | Dec-16 | | | | | |
| | | Transect | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | | Reference | | T1 | | T2 | |
| Family | Species | Chinese name | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | |
| Asteraceae | <i>Mikania micrantha</i> | 蓋甘菊 | 0.6 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | 1.2 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | 1.5 | 10 | | | | | 1.5 | 10 | | | | | | | | | | | | | | | | | | | |
| Araceae | <i>Alocasia odora</i> | 海芋 | | | | | | | 0.4 | 5 | | | | | 0.4 | 5 | | | | | | | | | | | | | | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | 0.5 | 5 | | | | | 0.5 | 5 | | | | | 0.5 | 5 | | | | | | | | | | | | | | | | | |
| Myrtaceae | <i>Cleistocalyx operculatus</i> | 水箭 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Athyriaceae | <i>Callipteris esculenta</i> | 菜蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Phragmites karka</i> | 卡開蘆 | 1.5 | 5 | | | | | 1.6 | 5 | | | | | 1.6 | 5 | | | | | | | | | | | | | | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Equisetaceae | <i>Equisetum debile</i> | 筆管草 | 0.3 | 5 | | | | | 0.5 | 5 | | | | | 0.5 | 5 | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Ageratum conyzoides</i> | 勝紅菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 箭筈草 | 0.4 | 5 | 0.3 | 5 | 0.4 | 5 | 0.4 | 10 | 0.4 | 10 | 0.4 | 10 | 0.5 | 10 | 0.3 | 10 | 0.3 | 10 | 0.5 | 10 | 0.1 | 10 | 0.1 | 10 | 0.5 | 10 | 0.2 | 10 | 0.2 | 10 | |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Mallotus paniculatus</i> | 白楸 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Eleusine indica</i> | 牛筋草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蟛蜞菊 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.7 | 5 | | | 0.5 | 8 | 0.7 | 5 | | | 0.5 | 8 | 0.8 | 5 | | | 0.5 | 8 | 0.8 | 5 | | | 0.1 | 8 | 0.8 | 5 | | | 0.3 | 8 | |
| Poaceae | <i>Panicum repens</i> | 結骨草 | 0.4 | 5 | | | | | 0.4 | 5 | | | | | 0.4 | 5 | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea cairica</i> | 五爪金龍 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cucurbitaceae | <i>Bemincasa hispida</i> | 冬瓜 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Merremia hederacea</i> | 魚黃草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | 2 | 5 | | | | | 1.6 | 5 | | | | | 1.6 | 5 | | | | | 0.1 | 5 | | | | | 0.3 | 5 | |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | | 1.2 | 2 | | | | | 1.2 | 5 | 1.3 | 5 | | | 1.2 | 5 | 1.3 | 5 | | | 0.1 | 5 | 0.1 | 5 | | | 0.3 | 5 | 0.3 | 5 | |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Malvaceae | <i>Hibiscus rosa-sinensis</i> | 大紅花 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Balsaminaceae | <i>Impatiens walleriana</i> | 非洲鳳仙 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | 1.7 | 5 | | | | | 1.5 | 5 | | | | | 1.5 | 5 | | | | | | | | | | | | | | | | | |
| Bare Ground | | | | 55 | | 93 | | 72 | | 35 | | 85 | | 62 | | 35 | | 85 | | 62 | | 35 | | 85 | | 62 | | 35 | | 85 | | 62 | |

- Reference point was the sampling location outside the works area used to compare with the data within works area.

P1 – Point count location 1; P2 – Point count location 2

Table 4.2. Flora species recorded from belt transect survey at the Upper Tai Po stream (T1- Upper stream sampling site and T2 - Lower stream sampling site)

| Family | Species | Chinese name | Post construction monitoring | | | | | | Post construction monitoring | | | | | | Post construction monitoring | | | | | |
|------------------|---------------------------------|--------------|------------------------------|----|------------|----|------------|----|------------------------------|----|------------|----|------------|----|------------------------------|----|------------|----|------------|----|
| | | | Reference | | Jan-17 | | T2 | | Reference | | Feb-17 | | T2 | | Reference | | Mar-17 | | T2 | |
| | | | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % | Height (m) | % |
| Asteraceae | <i>Mikania micrantha</i> | 蓋甘菊 | 0.5 | 10 | | | | | 0.5 | 10 | | | | | 0.5 | 10 | | | | |
| Moraceae | <i>Ficus hispida</i> | 對葉榕 | | | | | | | | | | | | | | | | | | |
| Ulmaceae | <i>Celtis sinensis</i> | 朴樹 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Microstegium ciliatum</i> | 剛秀竹 | 1.5 | 10 | | | | | 1.5 | 10 | | | | | 1.6 | 10 | | | | |
| Euphorbiaceae | <i>Macaranga tanarius</i> | 血桐 | | | | | 0.3 | 10 | | | | | 0.3 | 10 | | | | | 0.3 | 10 |
| Araceae | <i>Alocasia odora</i> | 海芋 | 0.4 | 5 | | | | | 0.4 | 5 | | | | | 0.5 | 5 | | | | |
| Araceae | <i>Colocasia esculenta</i> | 芋 | 0.5 | 5 | | | | | 0.5 | 5 | | | | | 0.5 | 5 | | | | |
| Myrtaceae | <i>Cleistocalyx operculatus</i> | 水翁 | | | | | | | | | | | | | | | | | | |
| Athyriaceae | <i>Callipteris esculenta</i> | 菜蕨 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Phragmites karka</i> | 卡開蘆 | 1.6 | 5 | | | | | 1.6 | 5 | | | | | 1.6 | 5 | | | | |
| Thelypteridaceae | <i>Cyclosorus parasiticus</i> | 華南毛蕨 | | | | | | | | | | | | | | | | | | |
| Equisetaceae | <i>Equisetum debile</i> | 筆管草 | 0.5 | 5 | | | | | 0.5 | 5 | | | | | 0.5 | 5 | | | | |
| Asteraceae | <i>Ageratum conyzoides</i> | 勝紅菊 | | | | | | | | | | | | | | | | | | |
| Commelinaceae | <i>Commelina diffusa</i> | 箭筈草 | 0.5 | 10 | 0.3 | 10 | 0.2 | 10 | 0.6 | 10 | 0.4 | 10 | 0.3 | 10 | 0.6 | 10 | 0.5 | 10 | 0.3 | 10 |
| Solanaceae | <i>Solanum nigrum</i> | 龍葵 | | | | | | | | | | | | | | | | | | |
| Euphorbiaceae | <i>Mallotus paniculatus</i> | 白楸 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Eleusine indica</i> | 牛筋草 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum purpureum</i> | 象草 | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Wedelia chinensis</i> | 蟛蜞菊 | | | | | | | | | | | | | | | | | | |
| Asteraceae | <i>Bidens alba</i> | 白花鬼針草 | 0.8 | 5 | | | 0.3 | 8 | 0.8 | 5 | | | 0.4 | 8 | 0.8 | 5 | | | 0.4 | 8 |
| Poaceae | <i>Panicum repens</i> | 結骨草 | 0.4 | 5 | | | | | 0.4 | 5 | | | | | 0.5 | 5 | | | | |
| Poaceae | <i>Coix lacryma-jobi</i> | 薏苡 | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Ipomoea cairica</i> | 五爪金龍 | | | | | | | | | | | | | | | | | | |
| Cucurbitaceae | <i>Bemincasa hispida</i> | 冬瓜 | | | | | | | | | | | | | | | | | | |
| Fabaceae | <i>Pueraria lobata</i> | 野葛 | | | | | | | | | | | | | | | | | | |
| Convolvulaceae | <i>Merremia hederacea</i> | 魚黃草 | | | | | | | | | | | | | | | | | | |
| Poaceae | <i>Pennisetum alopecuroides</i> | 狼尾草 | | | | | 0.3 | 5 | | | | | 0.3 | 5 | | | | | 0.3 | 10 |
| Poaceae | <i>Brachiaria mutica</i> | 巴拉草 | | | 0.3 | 5 | 0.3 | 5 | | | 0.3 | 5 | 0.3 | 5 | | | 0.5 | 10 | 0.3 | 5 |
| Onagraceae | <i>Ludwigia erecta</i> | 美洲水丁香 | | | | | | | | | | | | | | | | | | |
| Malvaceae | <i>Hibiscus rosa-sinensis</i> | 大紅花 | | | | | | | | | | | | | | | | | | |
| Cyperaceae | <i>Cyperus sp.</i> | 莎草 | | | | | | | | | | | | | | | | | | |
| Balsaminaceae | <i>Impatiens walleriana</i> | 非洲鳳仙 | | | | | | | | | | | | | | | | | | |
| Amaranthaceae | <i>Celosia argentea</i> | 青葙 | 1.5 | 5 | | | | | 1.5 | 5 | | | | | 1.5 | 5 | | | | |
| Bare Ground | | | | 35 | | 85 | | 62 | | 35 | | 85 | | 62 | | 35 | | 80 | | 57 |

- Reference point was the sampling location outside the works area used to compare with the data within works area.

P1 – Point count location 1; P2 – Point count location 2

Table 4.4. Odonate species recorded at the Upper Tai Po River

| Species | Common name | Chinese name | Status | Commonness | Baseline survey | Impact monitoring | | | | | Impact monitoring | | | | | Post construction monitoring | | | | | | | | Post construction monitoring | | | | | | | | |
|---|---------------------------|--------------|--------|------------|-----------------|-------------------|--------|--------|--------|--------|-------------------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | | Oct-07 | Jan-09 | Jul-09 | Jan-10 | Jul-10 | Jan-11 | Jul-11 | Jan-12 | Jul-12 | Mar-13 | Jul-13 | Jan-14 | Feb-14 | Mar-14 | Apr-14 | May-14 | Jun-14 | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 |
| <i>Aethriamanta brevipennis brevipennis</i> | Elusive Adjutant | 短腹異蜻 | NP | U | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Macrodiplox cora</i> | Coastal Glider | 高翔濼蜻 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Ceragrion auranticum ryukyuanum</i> | Orange-tailed Sprite | 琉球橘黃蟳 | NP | VC | | | | | | | | | | | | | | + | + | | | | | | | | | | | | | |
| <i>Copera marginipes</i> | Yellow Featherlegs | 黃狹扇蟳 | NP | VC | | | | | | | | | | | | | | | | | + | + | + | + | | | | | + | + | | |
| <i>Crocothemis servilia servilia</i> | Crimson Darter | 紅蜻 | NP | VC | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Euphaea decorata</i> | Black-banded Gossamerwing | 方帶幽蟳 | NP | VC | | | | | | | | | | | | | | | | | + | + | | | | | | | | | | |
| <i>Neurobasis chinensis</i> | Chinese Greenwing | 華翠色蟳 | NP | C | | | | | | + | | | | | | | | | | | | | | | | | | | | + | + | |
| <i>Neurothemis fulvia</i> | Russet Percher | 網脈蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum chrysis</i> | Red-faced Skimmer | 華麗灰蜻 | NP | VC | | + | + | | + | | | | | + | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum glaucum</i> | Common blue skimmer | 黑尾灰蜻 | NP | VC | + | + | + | | | | | | | + | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum luzonicum</i> | Marsh Skimmer | 呂宋灰蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | + | + | |
| <i>Orthetrum pruinosum neglectum</i> | Common Red Skimmer | 赤褐灰蜻 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Palpopleura sexmaculata sexmaculata</i> | Asian Widow | 六斑曲線蜻 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pantala flavescens</i> | Wandering Glider | 黃蜻 | NP | VC | + | | + | + | + | + | ++ | + | + | + | | | | | | | | | | | | | | | | | | |
| <i>Paracercion calamorum dyeri</i> | Dusky Lilyquatter | 華尾蟳 | P, LC | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Prodiasineura autumnalis</i> | Black Threadtail | 烏齒原蟳 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudagrion rubriceps rubriceps</i> | Orange-faced Sprite | 丹頂斑蟳 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Rhinocypha perforata</i> | Common Blue Jewel | 三斑島蟳 | NP | VC | | | | | | + | | | | | | | | | | | | | | | | | | | | | + | + |
| <i>Trithemis Aurora</i> | Crimson dropwing | 騰褐蜻 | NP | VC | + | | | | | + | | | | | | | | | | | | | | | | | | | | | | |
| <i>Trithemis festiva</i> | Indigo Dropwing | 騰褐蜻 | NP | VC | | | | | | | | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Urothemis signata signata</i> | Scarlet Basket | 赤斑曲線蟳 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Zygonyx iris insignis</i> | Emerald Cascader | 彩須蜻 | P | P,PGC | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No of Species | | | | | 4 | 2 | 4 | 1 | 6 | 1 | 5 | 1 | 5 | 1 | 4 | 2 | 1 | 3 | 4 | 4 | 2 | 5 | 7 | 8 | 9 | 6 | 2 | 2 | 1 | 3 | 6 | 7 |

Note: NP – Not protected in Hong Kong P- Protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” - Common
 “+” – Species exists in the study area
 “++” – Species common in the study area
 “+++” – Species abundance in the study area
 Commonness and status were decided according to AFCD biodiversity website (www.hkbiodiversity.net)
 LC- Local Concern - Fellowes *et al* (2002)
 PGC - Potential Global Concern - Fellowes *et al* (2002)

Table 4.4. Odonate species recorded at the Upper Tai Po River

| Species | Common name | Chinese name | Status | Commonness | Post construction monitoring | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------------|--------------|--------|------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
| | | | | | Jun-15 | Jul-15 | Aug-15 | Sep-15 | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 | |
| <i>Aethriamanta brevipennis brevipennis</i> | Elusive Adjutant | 短腹異蜻 | NP | U | | | | | | | | | | | | | + | + | + | | | | | | | | |
| <i>Macrodiplox cora</i> | Coastal Glider | 高翔濛濛 | NP | C | + | + | | | | | | | | | | | | | | | | | | | | | |
| <i>Ceragrion auranticum ryukyuanum</i> | Orange-tailed Sprite | 琉球橘黃蟌 | NP | VC | + | + | + | + | | | | | | | | | + | + | + | + | | | | | | | |
| <i>Copera marginipes</i> | Yellow Featherlegs | 黃狹扇蟌 | NP | VC | + | + | + | + | | | | | | | | | | | | | | | | | | | |
| <i>Crocothemis servilia servilia</i> | Crimson Darter | 紅蜻 | NP | VC | | + | + | + | + | + | | | | | | | | + | + | + | + | + | | | | | |
| <i>Euphaea decorata</i> | Black-banded Gossamerwing | 方帶幽蟌 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Neurobasis chinensis</i> | Chinese Greenwing | 華藍色蟌 | NP | C | | | + | + | + | | | | | | | + | + | + | + | + | + | + | | | | | |
| <i>Neurothemis fulvia</i> | Russet Percher | 網脈蜻 | NP | VC | | + | + | + | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum chrysis</i> | Red-faced Skimmer | 華麗灰蜻 | NP | VC | | | + | + | + | + | | | | + | + | + | + | + | + | + | + | + | | | | | |
| <i>Orthetrum glaucum</i> | Common blue skimmer | 黑尾灰蜻 | NP | VC | | | | | + | + | | | | | | | | | | | | | | | | | |
| <i>Orthetrum luzonicum</i> | Marsh Skimmer | 呂宋灰蜻 | NP | VC | + | + | + | | | | | | | | | | + | + | + | + | + | + | + | | + | + | |
| <i>Orthetrum pruinosum neglectum</i> | Common Red Skimmer | 赤褐灰蜻 | NP | VC | + | + | | | | | | | | | | + | + | + | + | + | + | + | | | | | + |
| <i>Palpopleura sexmaculata sexmaculata</i> | Asian Widow | 六斑曲線蜻 | NP | C | + | + | | | | | | | | | | | | | | | | | | | | | |
| <i>Pantala flavescens</i> | Wandering Glider | 黃蜻 | NP | VC | | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Paracercion calamorum dyeri</i> | Dusky Lilysquatter | 葦尾蟌 | P, LC | C | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Prodasineura autumnalis</i> | Black Threadtail | 烏齒原蟌 | NP | VC | | | + | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudagrion rubriceps rubriceps</i> | Orange-faced Sprite | 丹頂斑蟌 | NP | C | + | + | | | | | | | | | | | | | | | | | | | | | |
| <i>Rhinocypha perforata</i> | Common Blue Jewel | 三斑島蟌 | NP | VC | + | + | + | + | + | | | | | | | | + | + | + | + | + | + | | | | | |
| <i>Trithemis Aurora</i> | Crimson dropwing | 曉褐蜻 | NP | VC | | | | | + | + | | | | | | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Trithemis festiva</i> | Indigo Dropwing | 靛褐蜻 | NP | VC | + | + | + | + | + | | | | + | | | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Urothemis signata signata</i> | Scarlet Basket | 赤斑曲線脈蜻 | NP | C | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Zygonyx iris insignis</i> | Emerald Cascader | 彩須蜻 | P | P,PGC | | | | | | | | | | | | | | | | | | | | | | | |
| No of Species | | | | | 9 | 11 | 10 | 8 | 8 | 5 | 1 | 2 | 1 | 2 | 7 | 10 | 11 | 11 | 10 | 8 | 7 | 5 | 1 | 1 | 2 | 3 | |

Note: NP – Not protected in Hong Kong P- Protected in Hong Kong
 “VC” – Very Common; “UC” – Uncommon; “C” - Common
 “+” – Species exists in the study area
 “++” – Species common in the study area
 “+++” – Species abundance in the study area

Commonness and status were decided according to AFCD biodiversity website (www.hkbiodiversity.net)
 LC- Local Concern - Fellowes *et al* (2002)
 PGC - Potential Global Concern - Fellowes *et al* (2002)

Table 4.5 Aquatic Macro invertebrates recorded at Upper Tai Po River (T1 - Upper stream sampling site and T2 - Lower stream sampling site)

| Species | Chinese name | Sampling point | Baseline survey | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Impact monitoring | | | Post construction monitoring | | | | | | | | | | | | | | |
|---------------------------------|--------------|----------------|-----------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|-------------------|----|-----------|------------------------------|----|-----------|--------|----|-----------|--------|----|----|--------|---|----|--------|---|---|
| | | | Oct-07 | | | Jan-09 | | | Jul-09 | | | Jan-10 | | | Jul-10 | | | Jan-11 | | | Jul-11 | | | Jan-12 | | | Jul-12 | | | Mar-13 | | | Jul-13 | | | Jan-14 | | | Feb-14 | | | Mar-14 | | | Apr-14 | | |
| | | | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | | | | | | | |
| Mollusca | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | 螺 | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Brotia hainanensis</i> | 螺 | NP | ++ | + | ++ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Melanoides tuberculata</i> | 福寿螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Physella acuta</i> | 小瓶螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pomacea canaliculata</i> | 福寿螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Radix plicatulus</i> | 田螺 | NP | VC | ++ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sinoita quadrata</i> | 田螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Anisocentropus sp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Arctoptera sp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Aulocodes sp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | 螺 | NP | VC | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Chironomus sp.</i> | 螺幼虫 | NP | VC | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Ephemera sp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Indobates sp.</i> | 螺 | NP | VC | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Mnais sp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Odonate Larvae | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum sp.</i> | 螺 | NP | VC | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Perla sp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Rhaphium sp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Tipulidae spp.</i> | 螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Crustacea | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantonensis</i> | 福寿螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cryptopotamon anacolutum</i> | 螺 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Eriocher japonica</i> | 螺 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Macrobrachium hainanense</i> | 福寿螺 | NP | VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No of Species | | | 5 | 6 | 9 | 0 | 5 | 11 | 2 | 5 | 11 | 12 | 6 | 11 | 16 | 8 | 10 | 6 | 5 | 12 | 4 | 4 | 10 | 6 | 4 | 14 | 7 | 1 | 14 | 2 | 0 | 13 | 4 | 1 | 13 | 7 | 4 | 14 | 10 | 8 | 17 | 11 | 9 | 18 | 13 | 9 | 9 |

Note:
 "NP" - Not protected in Hong Kong
 "r" - Listed in Wild Animals Protection Ordinance (Cap. 170) and listed as "Near Threatened" in IUCN Red List Status
 "VC" - Very Common; "UC" - Uncommon; "C" - Common
 "+" - Species exists in the study area
 "++" - Species common in the study area
 "+++" - Species abundance in the study area
 - Reference point was the sampling location outside the works area used to compare the with the data within works area.

Table 4.5 Aquatic Macro invertebrates recorded at Upper Tai Po River (T1- Upper stream sampling site and T2- Lower stream sampling site)

| Species | Chinese name | Sampling point | Post construction monitoring | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|--------------|----------------|------------------------------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|--------|----|---|--------|----|---|--------|----|---|----|----|---|----|----|---|--|--|
| | | | Jun-15 | | | Jul-15 | | | Aug-15 | | | Sep-15 | | | Oct-15 | | | Nov-15 | | | Dec-15 | | | Jan-16 | | | Feb-16 | | | Mar-16 | | | Apr-16 | | | May-16 | | | Jun-16 | | | Jul-16 | | | Aug-16 | | | | | | | | | | |
| | | | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | | | | | | | | | | | | | | | | | |
| Mollusca | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria sp.</i> | | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | | | | | | | |
| <i>Brotia hainanensis</i> | | NP VC | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | | | | | | | | |
| <i>Melanooides tuberculata</i> | 縮唇黑螺 | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | | | | | | | |
| <i>Physella acuta</i> | 尖刺膀胱螺 | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | | | | | | | |
| <i>Pomacea canaliculata</i> | 福寿螺 | NP VC | + | + | + | + | + | | + | + | + | + | + | | + | + | + | + | + | | + | + | + | + | + | | + | + | + | + | + | | + | + | + | + | + | | + | + | + | + | + | | + | + | | | | | | | | | |
| <i>Radix plicatulus</i> | 鐘白螺 | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | | | | | | | |
| <i>Sinothaia quadrata</i> | 田螺 | NP VC | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | | | | | | | | |
| Insecta | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Anisocentropus sp.</i> | | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | | | | |
| <i>Ariclopora sp.</i> | | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | | | | |
| <i>Auloscodex sp.</i> | | NP VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis sp.</i> | | NP VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Chironomus sp.</i> | 孑孓 | NP VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | |
| <i>Ephemera sp.</i> | | NP VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Indobaetis sp.</i> | | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | | | | |
| <i>Mnais sp.</i> | | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | |
| Odonate Larvae | | NP VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Orthetrum sp.</i> | | NP VC | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | | | | | |
| <i>Perla sp.</i> | | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | |
| <i>Rhyssalus sp.</i> | | NP VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Tipulidae spp.</i> | | NP VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Crustacea | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantonensis</i> | 福寿螺 | NP VC | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | ++ | ++ | | | |
| <i>Cryptopotamon anacolutum</i> | 螺 | NP C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Eriocheir japonica</i> | 日本沼蟹 | NP C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Macrobrachium hainanense</i> | 福寿螺 | NP VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | + | | | | |
| No of Species | | | 15 | 7 | 4 | 15 | 7 | 4 | 16 | 6 | 4 | 16 | 6 | 3 | 16 | 6 | 3 | 16 | 6 | 3 | 16 | 6 | 3 | 16 | 6 | 3 | 16 | 6 | 3 | 16 | 6 | 3 | 16 | 6 | 3 | 15 | 6 | 3 | 15 | 6 | 3 | 15 | 6 | 3 | 15 | 6 | 3 | 15 | 6 | 3 | 15 | 6 | 3 | | |

Note:
 "NP" - Not protected in Hong Kong
 "r" - Listed in wild Animals Protection Ordinance (Cap. 170) and listed as "Near Threatened" in IUCN Red List Status
 "VC" - Very Common; "UC" - Uncommon; "C" - Common
 "+" - Species exists in the study area
 "++" - Species common in the study area
 "+++" - Species abundance in the study area
 - Reference point was the sampling location outside the works area used to compare the with the data within works area.

Table 4.5 Aquatic Macro invertebrates recorded at Upper Tai Po River (T1- Upper stream sampling site and T2- Lower stream sampling site)

| Species | Chinese name | Sampling point | Post construction monitoring | | | | | | | | | | | | Post construction monitoring | | | | | | | | | |
|----------------------------------|--------------|----------------|------------------------------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|------------------------------|----|----|-----------|----|----|-----------|----|----|---|
| | | | Sep-16 | | | Oct-16 | | | Nov-16 | | | Dec-16 | | | Jan-17 | | | Feb-17 | | | Mar-17 | | | |
| | | | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | |
| Mollusca | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Biomphalaria</i> sp. | -- | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Brotia hainanensis</i> | -- | NP | VC | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | |
| <i>Melanoides tuberculata</i> | 縹絲黑螺 | NP | VC | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | |
| <i>Physella acuta</i> | 尖刺膀胱螺 | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Pomacea canaliculata</i> | 福寿螺 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Radix plicatulus</i> | 鐘白螺 | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Sinotia quadrata</i> | 田螺 | NP | VC | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | |
| Insects | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Anisocentropus</i> sp. | -- | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Arcytopora</i> sp. | -- | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Aulocodes</i> sp. | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis</i> sp. | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | |
| <i>Baetis</i> sp. | 線幼虫 | NP | VC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| <i>Chironomus</i> sp. | | NP | VC | | | | | | | | | | | | | | | | | | | | | |
| <i>Ephemera</i> sp. | | NP | VC | | | | | | | | | | | | | | | | | | | | | |
| <i>Indobates</i> sp. | -- | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Mnais</i> sp. | -- | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| Odonate Larvae | -- | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Orthetrum</i> sp. | -- | NP | VC | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | |
| <i>Perla</i> sp. | -- | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Rhaphium</i> sp. | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | |
| <i>Tipulidae</i> spp. | -- | NP | VC | | | | | | | | | | | | | | | | | | | | | |
| Crustacea | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Caridina cantonensis</i> | 廣東水螳 | NP | VC | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | | + | + | |
| <i>Cryptopotamon anacoluthon</i> | 柳影水螳 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| <i>Eriocher japonica</i> | 日本放蟬蟹 | NP | C | | | | | | | | | | | | | | | | | | | | | |
| <i>Macrobrachium hainanense</i> | 海南沼蝦 | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | | + | + | |
| No of Species | | | | 17 | 6 | 3 | 17 | 6 | 3 | 17 | 6 | 3 | 17 | 6 | 3 | 18 | 6 | 3 | 18 | 6 | 3 | 18 | 6 | 3 |

Note:
 "NP" - Not protected in Hong Kong
 "r" - Listed in wild animals protection Ordinance (Cap. 170) and listed as "Near Threatened" in IUCN Red List Status
 "VC" - Very Common; "UC" - Uncommon; "C" - Common
 "+" - Species exists in the study area
 "++" - Species common in the study area
 "+++" - Species abundance in the study area
 - Reference point was the sampling location outside the works area used to compare the with the data within works area.

Table 4.6 Fish species and Hong Kong Newt recorded at Upper Tai Po River (T1 - Upper stream sampling site and T2 - Lower stream sampling site)

| Species | Status | Commonness | Baseline survey | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Impact monitoring | | Post construction monitoring | | | | | | | | | | | |
|---|--------|------------|-----------------|----|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|------------------------------|---|---|---|---|---|----|---|---|----|----|----|
| | | | Oct-07 | | Jan-09 | Jan-09 | Jul-09 | Jan-10 | Jul-10 | Jan-11 | Jul-11 | Jan-12 | Jul-12 | Mar-13 | Jul-13 | Jan-14 | Feb-14 | Jan-14 | Feb-14 | Jan-14 | Feb-14 | Jan-14 | Feb-14 | Jan-14 | Feb-14 | Jan-14 | Feb-14 | Jan-14 | Feb-14 | Jan-14 | Feb-14 | | | | | | | | | | | |
| <i>Cyprinus carpio</i> var. <i>viridivittatus</i> | 錦鯉 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | ++ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Glyptothorax pallozomum</i> | 白線紋胸鮡 | NP | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Liniparhomaloptera disparis</i> | 鯪平鰐 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰌 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Oreochromis niloticus</i> | 尼羅口孵非鯽 | NP | C | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Parazacco spilurus</i> | 異鰻 | V and | C | ++ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Poecilia reticulata</i> | 孔雀花魚 | NP | C | ++ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudogyrinus trilineatus</i> | 三線擬鰻 | NP,GC | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pseudogyrinus myersi</i> | 麥氏擬鰻吸鰻 | NP | C | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Pterocryptis cochinchinensis</i> | 越南鰻鰡 | NP | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Rhinogobius spp.</i> | 鰻魚 | NP | C | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Schistura fasciolata</i> | 縉紋南鰻 | NP | C | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | ++ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 70 | 60 | 15 | 8 | 25 | 10 | 20 | 100 | 10 | 2 | 8 | 10 | 7 | 100 | 10 | 5 | 20 | 6 | 2 | 4 | 6 | 2 | 5 | 5 | 2 | 2 | 5 | 2 | 1 | 5 | 2 | 1 | 12 | 8 | 6 | 10 | 12 | 10 |
| | | | | | No of Speices | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amphibian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港襍蟻 | P | UC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: NP – Not protected in Hong Kong; P - Protected in Hong Kong

“VC” – Very Common; “UC” – Uncommon; “C” - Common

“+” – Species exists in the study area

“++” – Species common in the study area

“+++” – Species abundance in the study area

V – Listed as vulnerable in China Fish Red Data Book

GC- Global Concern - Fellowes *et al* (2002)

- Reference point was the sampling location outside the works area used to compare with the data within works area.

Table 4.6 Fish species and Hong Kong Newt recorded at Upper Tai Po River (T1 - Upper stream sampling site and T2 - Lower stream sampling site)

| Species | Status | Commonness | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | Post construction monitoring | | | |
|--|--------|---------------|------------------------------|----|----|------------------------------|----|----|------------------------------|----|----|------------------------------|----|----|------------------------------|----|----|------------------------------|----|----|---|
| | | | Oct-16 | | | Nov-16 | | | Dec-16 | | | Jan-17 | | | Feb-17 | | | Mar-17 | | | |
| | | | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | Reference | T1 | T2 | |
| <i>Cyprinus carpio</i> var. <i>viridiviolaceus</i> | 錦鯉 | NP | C | | | | | | | | | | | | | | | | | | |
| <i>Gambusia affinis</i> | 食蚊魚 | NP | VC | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Glyptothorax pallozonum</i> | 白線紋胸鮡 | NP | R | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Liniparhomaloptera disparis</i> | 鯉平鰲 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Misgurnus anguillicaudatus</i> | 泥鰌 | NP | C | | | | | | | | | | | | | | | | | | |
| <i>Oreochromis niloticus</i> | 白羅口非鯽 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Parazacco spilurus</i> | 黑鰱 | V and | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Poecilia reticulata</i> | 孔雀魚 | NP | C | | | | | | | | | | | | | | | | | | |
| <i>Pseudobagrus trilineatus</i> | 三線擬鮡 | NP,GC | R | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Pseudogastromyzon myersi</i> | 麥氏擬腹吸鰍 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Pterocryptis cochinchinensis</i> | 越南隱鰓鮡 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Puntius semifasciolatus</i> | 七星魚 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Rhinogobius spp.</i> | 鰻常魚 | NP | C | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| <i>Schistura fasciolata</i> | 橫紋南鰻 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Xiphophorus hellerii</i> | 劍尾魚 | NP | C | + | | | + | | | + | | | + | | | + | | | + | | |
| <i>Xiphophorus variatus</i> | 雜色劍尾魚 | NP | C | | | | | | | | | | | | | | | | | | |
| | | | | 25 | 2 | 2 | 30 | 2 | 2 | 35 | 2 | 2 | 40 | 2 | 2 | 45 | 2 | 2 | 45 | 2 | 2 |
| | | No of Speices | | 12 | 1 | 1 | 12 | 1 | 1 | 12 | 1 | 1 | 12 | 1 | 1 | 12 | 1 | 1 | 12 | 1 | 1 |
| Amphibian | | | | | | | | | | | | | | | | | | | | | |
| <i>Paramesotriton hongkongensis</i> | 香港襍蟻 | P | UC | + | | | | | | | | | | | | | | | | | |

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